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Supplement to

Appendix to the Journal of the Senate

Legislature of the State of California

1953 REGULAR SESSION

REPORTS

First Part of Session—January 5th to January 17th, Inclusive

Second Part of Session—February 24th to June 10th, Inclusive

HON. GOODWIN J. KNIGHT
President of the Senate

HON. HAROLD J. POWERS
President pro Tempore

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Secretary of the Senate

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SUPPLEMNT TO APPENDIX JOURNAL

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State and Local Tation, Senate Interim Committee on
Property Tax Assments and Equalization in California
Fiscal Problems Urban Growth in California

Special Report of the

JOINT LEGISLATIVE COMMITTEE ON AGRICULTURE AND LIVESTOCK PROBLEMS

Appointed Pursuant to the Terms of Senate Concurrent Resolution No. 69
of the 1951 Session of the California Legislature

ON

VESICULAR EXANTHEMA OF SWINE (V.E.) AND THE PRACTICE OF FEEDING RAW GARBAGE TO SWINE

MEMBERS OF THE COMMITTEE

Senators	*Assemblymen*
GEORGE J. HATFIELD, *Chairman*	JULIAN BECK
PAUL L. BYRNE	GEORGE A. CLARKE
EARL D. DESMOND	SAM L. COLLINS *
BEN HULSE	THOMAS M. ERWIN
HAROLD J. POWERS	WM. W. HANSEN
FRED WEYBRET	L. STEWART HINCKLEY
	LLOYD W. LOWREY

* Retired.

SHELBY F. HARPER
Executive Secretary

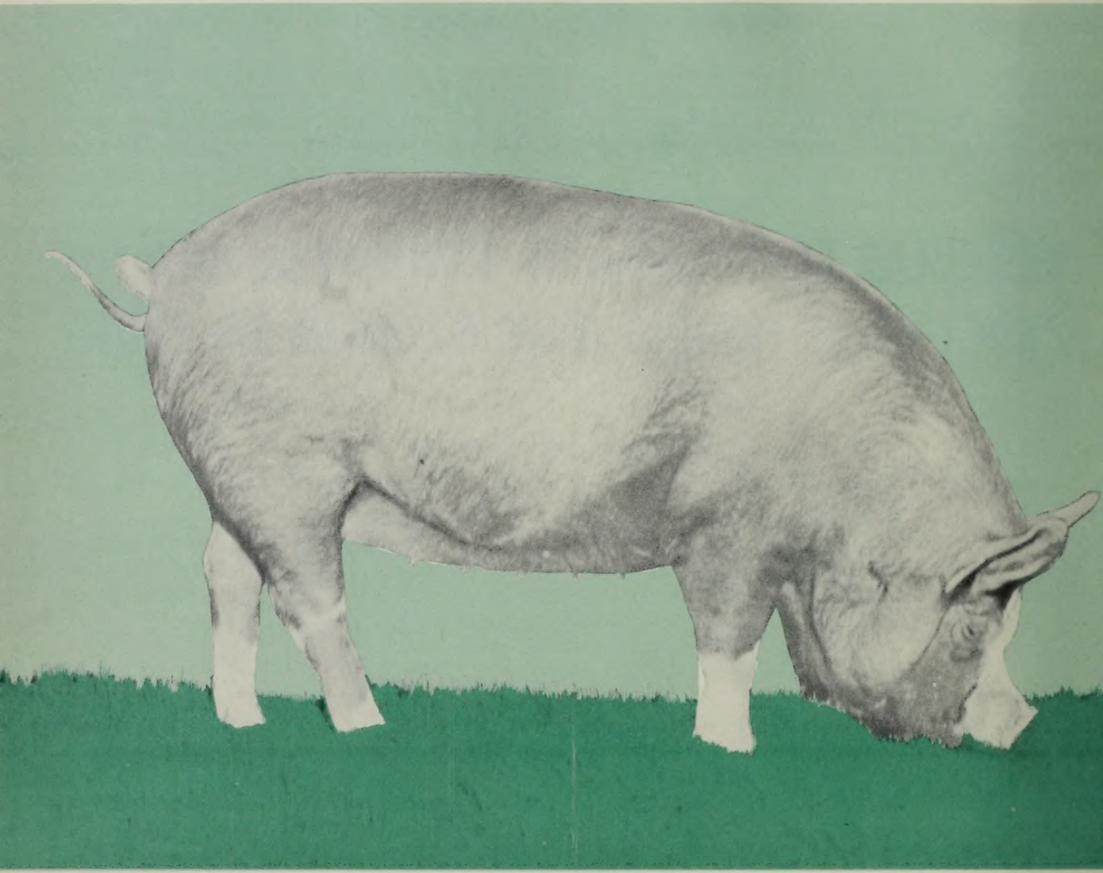
Published by the
SENATE
OF THE STATE OF CALIFORNIA

1953

GOODWIN J. KNIGHT
President of the Senate

HAROLD J. POWERS
President pro Tempore

JOSEPH A. BEEK
Secretary



INTRODUCTION

WHAT TO DO ABOUT VESICULAR EXANTHEMA (V.E.) OF SWINE is a major problem facing the State of California. What is the solution which will provide prevention, control and eradication of this virus disease in a manner which is not only expeditious but also acceptable to the various interested groups to whom V.E. and garbage feeding hog ranching are matters of considerable economic consequence? Where, if such exists, is the middle ground of agreement on which these various interests can join in a constructive program to achieve the goal of eradication of vesicular exanthema of swine in this State? These are questions placed before the California Joint Legislative Committee on Agriculture and Livestock Problems, and in an effort to develop the facts pertaining to the V.E. control problem, this committee conducted hearings in Los Angeles and Sacramento in December, 1952, and also has had a subcommittee actively engaged thereon.

Although conclusions as to the solution have not as yet been determined, the committee's judgment was that a comprehensive report should be prepared and made available at this time in order that this complex problem may be set forth and that the several points of view regarding possible solutions may be presented for the full information of all interested legislators and individuals. The Joint Legislative Committee on Agriculture and Livestock Problems herewith presents its report on the subject of vesicular exanthema of swine and the part that garbage feeding plays therein—***without the committee having arrived at conclusions or setting forth recommendations.***

LETTER OF TRANSMITTAL

SENATE, CALIFORNIA LEGISLATURE, March 25, 1953

The President of the Senate
The Speaker of the Assembly
And Other Members of the Senate and Assembly

The Joint Legislative Committee on Agriculture and Livestock Problems, created by S.C.R. 51 (Res. Ch. 141) Regular Session of 1945; continued by S.C.R. 4 (Res. Ch. 14) Regular Session of 1947; continued by S.C.R. 54 (Res. Ch. 193) Regular Session of 1949; and continued by S.C.R. 69 (Res. Ch. 221) Regular Session of 1951, submits without conclusions or recommendations the following special informational report covering the committee's hearings and investigation into the highly controversial and hotly debated subject of ''Vesicular Exanthema of Swine (V. E.) and the Practice of Feeding Raw Garbage to Swine.''

Respectfully submitted,

JULIAN BECK
LLOYD W. LOWREY
GEO. A. CLARKE
THOMAS M. ERWIN
WM. W. HANSEN

GEORGE J. HATFIELD, Chairman
PAUL L. BYRNE
FRED WEYBRET
HAROLD J. POWERS
BEN HULSE
EARL D. DESMOND

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SECRETARY OF AGRICULTURE, CHARLES F. BRANNAN, DECLARES A STATE OF **NATIONAL EMERGENCY** ARISING FROM THE EXISTENCE OF THE DISEASE OF VESICULAR EXANTHEMA IN SWINE

United States Department of Agriculture
Washington, D. C., August 1, 1952

The Secretary issued the following proclamation:

"Whereas, The disease of hogs known as vesicular exanthema has existed only in the State of California since 1932, and

"Whereas, This disease has now for the first time appeared in 15 [1] other states, and

"Whereas, The existence of this disease in such other states constitutes a real danger to producers, shippers, and others concerned with the swine industry, as well as to the national economy,

"Now Therefore, In accordance with the provisions of the appropriation item in the Department of Agriculture Appropriation Act, 1953 (Public Law 451—82d Congress, Second Session) entitled "Eradication of Foot-and-Mouth Disease and Other Contagious Diseases of Animals and Poultry," and Section 11 of the act of May 29, 1884 (21 U. S. C. 114a), I find an emergency arising out of the existence and spread of vesicular exanthema, *which in my opinion threatens the livestock industry of the Country*, and I authorize the use of the funds available under the said appropriation item for all proper purposes in a program conducted in cooperation with states and political subdivisions thereof, farmers' associations, and similar organizations and individuals, to arrest and eradicate the disease wherever found."

---

[1] Found in 38 states and the District of Columbia by March 16, 1953.

SUMMARY

VESICULAR EXANTHEMA—A PROBLEM

(Part I)

Vesicular exanthema of swine (V.E.) is a virus disease of hogs which is characterized by blisters on the hooves or mouth of the animal. Visually it is indistinguishable from the dreaded animal disease—hoof and mouth. California experienced its first V.E. outbreak in 1932 and was the only place in the world where this disease was known until June, 1952, when it appeared in Nebraska. In the eight months since the Nebraska discovery, V.E. has spread to 38 other states and the District of Columbia. Economically the prevalence of this disease works a considerable hardship on swine raisers, packing house operators, consumers (through reduced pork supply) and taxpayers (through inspection and quarantine expense incurred by agriculture livestock disease control operations). The great hazard of V.E. is its similarity to hoof and mouth—the possibility that a hoof-and-mouth outbreak may be permitted to get a strong foothold in the United States because it was erroneously presumed to be V.E. as a result of the common and accepted prevalence of the latter disease.

Efforts at controlling V.E. in California for over 20 years have been to no avail—including complete eradication programs on two occasions, in fact approximately 3,000,000 hogs have been involved in 1,600 outbreaks of V.E. in California. Quarantine efforts by United States Department of Agriculture officials and specialists in other states during the period August, 1952, to March, 1953, have resulted in the expenditure of millions of dollars and the slaughter of over 100,000 hogs—with the discouraging result that more states were infected in March, 1953, *after* all this effort, than were infected when the national emergency was declared on August 1, 1952.

V.E. eradication is necessary! The very existence of the disease directly costs the taxpayers of California tens of thousands of dollars annually for routine inspections as well as indirectly through the increased price they must pay for pork products as a result of V.E. reducing the supply of pork. Further, this disease is causing a serious shortage of the serum necessary to control the scourge of all hog ranchers—hog cholera. Federal livestock officials and those of other states, including legislative bodies, are moving rapidly to increase their efforts to eradicate this menace from the United States, and California is not likely to be permitted to remain a nestegg of infection to reinfect other states when they have cleaned it out.

A possible solution to the V.E. disease problem is thought by many leading scientists and animal disease control specialists to be in the prohibition of raw garbage feeding to swine. On the basis of this the Federal Government is proposing a V.E. eradication program which takes strong steps toward this end. In addition, some 10 states have already taken action, including legislative, to prohibit using raw garbage as a feed for swine, and at least 27 other states have legislation in process to accomplish this purpose. The scientists and specialists in this field are of the opinion that slaughter, quarantine, and prohibition of raw garbage as a feed for swine are three integral and equally necessary actions to the over-all and ultimate eradication of this disease.

The possibility of controlling V.E. through the development of a vaccine has been considered. However, for the following reasons it is not considered to be capable of immediate accomplishment nor a satisfactory long range solution: The lack of adequate information about the V.E. virus; the existence of at least four known strains of this virus; the length of time that can be expected to be required to develop a vaccine proven to be effective; the cost of periodic vaccination for at least four strains of virus; and the basic consideration is that such a remedy does not get to the source of the trouble, but merely serves as a crutch.

NOTE: California is a pork importing state. In 1951, for example, of the 2,300,000 hogs slaughtered in this State, only 400,000 were California hogs.

THE CALIFORNIA DEPARTMENT OF AGRICULTURE URGES GARBAGE BE COOKED

(Part II)

The California Department of Agriculture contends that legislation should be enacted at the 1953 General Session of the California Legislature to prohibit the feeding of raw garbage to livestock *effective July 1, 1955*. This date was selected in order to permit an orderly transition for those cities and garbage feeding ranchers that would be affected by such legislation. The department bases its case for the prohibition of raw garbage as a feedstuff for livestock on 20 years of experience with V.E., and the considerable amount of field evidence derived therefrom. Added to this is the unsuccessful experience in attempting to eradicate this disease by standard slaughter and quarantine measures of federal officials and officials from other states during the period August, 1952, to March, 1953, at the end of which period there was more V.E. than had existed at the beginning of the national emergency. The department states that had California maintained through the period 1932-1952 the eradication program on which it embarked in 1932, and permitted the feeding of raw garbage to continue, it would have been necessary to destroy over two and a half million hogs at an estimated cost in indemnities of in excess of $50,000,000.

Scientific research workers and experienced veterinarians are agreed that there is no question about raw garbage being the source of many diseases of swine, including hog cholera and V.E. The department offers six points as a summary of the field evidence that prohibition of the practice of feeding raw garbage is necessary to the ultimate eradication of V.E.:

1. The three initial outbreaks (1932-33-34) occurred in garbage-fed hogs.
2. All subsequent outbreaks (1935-1952) began in garbage-fed hogs.
3. When Los Angeles and Orange County feeders moved from their original premises to new locations in the Newhall-Saugus area the premises were established on clean soil free of hogs, garbage or swine infections. Within 4-12 months after occupying the new premises V.E. made its appearance.
4. When the disease broke out of California in June, 1952, it made its appearance in garbage-fed hogs at Cheyenne, Wyoming. (Fed on garbage from an overland train originating in California.)
5. In California there are approximately 20,000 premises on which hogs are raised. Of this number, 400 premises are commercial garbage feeding ranches. Over the 20-year period from 1932-1952 there have been 1,428 outbreaks of V.E. on these 400 garbage feeding ranches. On the remaining 19,600 grain or country ranches there have been 58 outbreaks of V.E., nearly all of which were directly traceable to an interchange of animals to or from garbage feeding ranches.
6. The 58 outbreaks on grain or country ranches are notable because in not a single instance has there been a recurrence of the disease after it had run its course and the hogs recovered.

The cost of ''control'' of a disease is more expensive than the outright eradication of the disease! The experience of Canada in this regard is interesting to note. In 1916 this nation prohibited by law the feeding of uncooked garbage to swine and the use of virus-serum method of immunization with the result that hog cholera was almost completely suppressed. In fact the last known outbreak of hog cholera in Canada occurred in 1946 and was eradicated at a cost of $600. This cost when compared with the estimated $40,000,000 annual expenditure for mere ''control'' of hog cholera in the United States graphically demonstrates the advantage of eliminating a disease rather than trying to learn to live with it. Therefore, prohibition of the practice of feeding raw garbage would not only aid in bringing about the eradication of V.E., but also of hog cholera and at a considerably less cost than ''control'' measures through use of a vaccine.

Raw garbage has been under attack for many years by livestock disease control scientists as well as by public health scientists. It is accused of not only harboring diseases of livestock (V.E., hog cholera, hoof-and-mouth, vesicular stomatitis), but also of helping to perpetuate one of the most important parasitic diseases of man in the United States—trichinosis.

Cooking garbage does not present unsurmountable obstacles. As a result of the passage of laws within the last few months garbage cooking equipment is already reported to be successfully operating in Omaha, Nebraska, Chicago, Illinois,. and Cheyenne, Wyoming.

In further support of its contention that the feeding of raw garbage should be discontinued, the department submits a series of exhibits which include the findings of eminent scientists far removed from California, recommendations of the American Farm Bureau Federation, the United States Livestock Sanitary officials, public health officers, representatives of the meat packing industry and federal livestock officials. Also, there is presented the actions of 10 states which have already enacted laws and regulations to prohibit the feeding of raw garbage.

These exhibits (approximately 40 in number) are contained on pages Ar 24 to 26B and constitute a portion of Part II, and they illustrate the strength of the case against raw garbage as a feed for swine and point up the strong national trend which has developed in the few months since August, 1952, toward eliminating this hazardous practice.

THE UNIVERSITY OF CALIFORNIA REPORTS ON VESICULAR EXANTHEMA AND GARBAGE

(Part III)

The Dean of the College of Agriculture, University of California at Davis, appointed a committee of university scientists and engineers to study and report on garbage feeding of swine. On November 21, 1952, this committee issued a report representing the extent of information available from the university on this subject. A summary of the findings of this committee is presented below:

> ''Information has been summarized which indicates that raw garbage feeding is responsible for increasing the incidence of certain diseases in swine. It is logical to anticipate that if garbage is properly treated by heat or some other means that the incidence of these diseases would be almost eliminated. Whether or not processing garbage would eradicate the diseases is not known.
>
> ''Even though such equipment is not commercially available in the United States at present, no doubt any demand for equipment to cook or otherwise process garbage under specified conditions would result in the development of it. From a commercial aspect equipment for large scale processing would be needed if the processing of garbage should be required. From small garbage feeders' standpoint the cost of operation of a small plant will be the problem.
>
> ''Cooking or processing garbage lowers the feed value depending upon the amount of processing and upon the quality of garbage. Military and No. 1 garbages (hotels, restaurants, hospitals) will be relatively less affected by such processing than poorer quality garbages, such as No. 2 garbage (residential). Cooking of poor quality garbage may not be economical. Dried or dehydrated garbage is not as palatable and cannot be used as the main portion of the diet as can raw or cooked garbage. Maximum usage would probably be as 25 to 35 percent of the

ration, and even then it is not worth as much as a grain ration.

"The question of economics has only been touched lightly. It is difficult to predict whether or not all garbage-feeding establishments in California can continue to show profits if they must feed cooked or processed garbage.

"If all garbage for swine feeding is to be processed, it will mean that garbage feeding equipment will need to be redesigned to some degree."

In addition the committee presented two tentative budget proposals. The first applied to the estimated cost of a "garbage feeding research project" and amounted to $89,458 for the first year and $27,225 for the annual operating costs thereafter. The second was the estimated cost of "veterinary projects, other than those connected with feeding" and amounted to $61,263 for the first year and $24,775 for the annual operating costs thereafter. These budget estimates were reviewed by interested groups outside the university and it was their recommendation that the budget amounts be increased.

IMMEDIATE LEGISLATIVE ACTION TO REQUIRE TREATMENT OF GARBAGE IS OPPOSED

(Part IV)

Section 1—The Position of the California Farm Bureau Federation

The C. F. B. F. represents over 60 percent of the hog raisers and feeders in the State of California and this number accounts for 75 percent of the total pork produced in California. Through the years of working to develop further production of pork in California, the Farm Bureau has been unsuccessful to do so through grain ranches, but has had somewhat of an increase in production of pork from garbage feeding establishments. The interest of the C. F. B. F. is manifold:

(1) Produce pork for California consumers.
(2) Provide sufficient hogs to packers, independent packers in California.
(3) Utilization of any feeds that will help alleviate the feed situation in California.

The C. F. B. F. has taken an active part in the exploration of the V.E. problem and has reached the conclusion that more research is necessary before action is taken to prohibit the feeding of raw garbage to livestock. In November, 1952, at their state convention, the Farm Bureau passed a resolution setting forth their policy calling for more research, it said in part:

> "We urge the California State Legislature to provide funds for determining whether the feeding of garbage to livestock is nocuous—particularly with respect to vesicular exanthema and, if so determined, make available information on the proper treatment of said material in order to render it innocuous to livestock. We recommend support for the introduction of such a measure."

The primary questions raised by the hog growers are:

(1) Can they be assured that V.E. will be eradicated through the passage of and enforcement of a law making mandatory the cooking of garbage?
(2) Can they comply with cooking regulations which may expectedly be promulgated in the prohibition of the feeding of raw garbage to livestock and still obtain a product of adequate feeding value at a practical cost?

It is the answer to these questions which the C. F. B. F. seeks, and, therefore, the Farm Bureau recommends and urges that additional research be accomplished to find acceptable solution prior to the enactment of legislation prohibiting the feeding of raw garbage to livestock. The C. F. B. F. presented to this Joint Legislative Committee a number of hog ranchers for the purpose of enlightening the committee membership upon the problems which a mandatory cooking law would entail, and also the Farm Bureau offered supporting data from local farm organizations throughout the State. These presentations are contained in detail in Part IV, Section 1, of the text of this report.

Section 2—The Position of the California League of Cities

The interest of the municipalities in the problem of eradication of V.E. through the prohibition of feeding raw garbage is essentially one of economics. However, the cities have indicated that they do not desire to obstruct steps which are necessary for the public health and safety. Numerous cities (See Appendix) dispose of all or part of their garbage by contracting with garbage feeding hog ranchers to collect it for feed purposes. This has been to the cities a direct source of revenue (at least $377,866 per year based upon reports filed with the Joint Legislative Committee by 52 cities, including Los Angeles, San Diego, Stockton, Sacramento, Berkeley) as a result of cash receipts for the garbage sold to the ranchers, and it has had the effect of being an indirect source of revenue (amount not estimated) as a result of cities obtaining garbage collection and disposal at a reduced cost, or at no cost, because the raw garbage had a value as a hog feed. This would not be the circumstance if the raw garbage had no value as a feed for livestock, and may not be the case if the value of raw garbage is reduced due to a mandatory cooking requirement.

The questions the cities raise are:

(1) Why must we lose this revenue source when there has not been positive scientific determination that V.E. can be eradicated through the prohibition of the feeding of raw garbage
(2) How can we dispose of the garbage which is now being fed to swine?
    1. Alternate methods are costly and involve considerable capital outlay as well as annual operating costs.

2. Additional research is needed to develop greater information on garbage disposal methods.

The position of the cities was summarized by a staff member of the League of Cities as follows:

1. "That we seek a determination of the causes of vesicular exanthema by an organization such as the University of California.
2. That there be extensive and comprehensive research to assist the cities in the realistic solution of the problem that would face them in the event of the prohibition of the present practices.
3. That there be a realization on the part of the Legislature of a critical financial problem that is posed to the cities in the event the change is required."

GARBAGE DISPOSAL IN LOS ANGELES COUNTY

(Part V)

This Joint Legislative Committee heard considerable testimony from representatives of Los Angeles County and the Los Angeles County Sanitation Districts on the problem in general of collection and disposal of refuse, rubbish and garbage. The testimony developed that, with or without raw garbage and hog feeding thereon, local government has been and continues to be perplexed with this over-all problem, and the current consideration of elimination of raw garbage as a feed for hogs is *not* creating a new problem for local units of government—they have been working in this general problem area for years. In fact, in Los Angeles County, the testimony indicates that raw garbage now going to hog feeders constitutes only about 16 percent of the total disposal problem. Further attesting to the fact that this is not a new problem being shifted to the local governments is the action in 1949 when the Legislature (Ch. 1575) appropriated $100,000 to the Regents of the University of California "to be available * * * for expenditure until June 30, 1951, in providing for and carrying on research relating to the technical problems of disposal of sewage, garbage and industrial waste and for the dissemination of such research information to all persons within the State affected by or interested therein." Chapter 1575 contained as one of the reasons for this urgency legislation the following:

> "Since in many areas of the State physical methods for such sanitary disposal, within economic limits, are not known, it is essential that a program of research to determine those methods be undertaken at once."

Also, during the four-year period 1949-1953, the university has expended approximately $60,000 per year at Berkeley for sanitary engineering research.

Reports issued by the university and by local agencies studying raw garbage feeding practices point up the fact that such practices are not desirable and that they are on the decline. However, estimates of future trends in the Los Angeles County area do indicate that, in the opinion of qualified observers, a large quantity of garbage will continue for a number of years to be available for hog-feeding purposes, and that the continuance of garbage-feeding ranches is "quite important to our economy."

TRICHINOSIS

(Part VI)

In the course of hearings by this Joint Legislative Committee into the subject of V.E. and raw garbage feeding practices, the point developed that raw garbage used as a feed for livestock was an important source of human trichinosis. Public health officials stated that although the reported incidence of this disease was low, experiments conducted by examining diaphragms of human beings who have died of other causes revealed that between 22 percent and 28 percent of normal individuals, or at least individuals who have not died of trichinosis, have evidence that they have had this disease!

The Director of the California Department of Public Health stated that in looking to the entire eradication of the disease of trichinosis the question of prohibiting the feeding of raw garbage to livestock would have to be considered. This position was confirmed by the conference of California Public Health Officers.

PART I

VESICULAR EXANTHEMA (V.E.)

Vesicular exanthema of swine (V.E. for short) is an acute febrile disease of swine whose infective agent is a filterable virus. The disease is very closely associated with the vesicular disease complex, that is, foot and mouth disease, vesicular stomatitis and vesicular exanthema. These three diseases are indistinguishable from one another by clinical examination—that is to say, that they cannot be differentiated between by merely examining the infected animal, but rather animal inoculation tests in the field plus a full laboratory test taking about 10 days is required. It is believed that there are four distinct types of vesicular exanthema virus. Three types are on hand and experimentation is being conducted to determine the fourth type.[1]

Vesicular exanthema is characterized by the formation of vesicles or blisters on the snout, tongue, lips or other soft tissue of the mouth, on the skin between and above the hoofs and on teats of nursing sows. It runs a relatively short course and recovery is progressive unless complicated by secondary infections.

Illustration No. 1

HOGS CRIPPLED FROM VIRUS

Photo from files of California Department of Agriculture

HISTORY OF VESICULAR EXANTHEMA OUTBREAKS [2]

The original outbreak of vesicular exanthema occurred in garbage fed hogs in Southern California on April 23, 1932, and full and complete stamping-out measures were rapidly and vigorously employed. The outbreak was believed to be foot-and-mouth disease, and every quarantine precaution, local and area, was applied and enforced to the fullest extent.

In this regard, it may be said that experience gained during the 1924 and 1929 outbreaks of foot-and-mouth disease in California was used to advantage in establishing quarantine areas and techniques, as well as operational procedures in the field. Officers of the California Highway Patrol assisted in guarding and systematically patrolling the quarantine areas, but, *despite the rapidity of the eradication program, stringent quarantines and restrictions, the 1932 effort apparently failed of success.*

Though treated as foot-and-mouth disease, the 1932 outbreak bears the notable distinction of actually being the first reported incidence of vesicular exanthema of swine. No infective meat, meat scraps or material was, or is, known to have existed and thus to have led to the first recognized case of the disease. Following the complete eradication of all diseased and exposed animals, thorough cleaning and disinfection of the infected premises, pens, vehicles and equipment, and through the imposition of rigid quarantines and restrictions, it can be assumed that no infective animal matter or material could have remained from this outbreak as the possible cause of the second outbreak which followed in 1933.

On March 20, 1933, 11 months after the first outbreak, the disease again appeared in garbage fed hogs in San Diego County, about 70 miles from the nearest 1932 infection. A staff of experts headed by Drs. J. Traum, C. U. Duckworth and W. E. Howe took immediate steps to arrive at a diagnosis, and to institute eradication measures. Everything was handled as in an outbreak of true foot-and-mouth disease except that burdensome and costly quarantines were not invoked, largely because no definite diagnosis was made. Every other precaution, however, was taken. When the infected premises were first visited, it was learned that 20 fat hogs from the herd had been sold to a slaughterer in Los Angeles before the disease was discovered. Investigation revealed that these hogs had been slaughtered; therefore, the carcasses were tanked as a precautionary measure, and all other contact carcasses, consisting of 24 hogs, two cows and two calves, were also tanked.

The procedure adopted in the 1933 outbreak was in all respects the same as would have been followed in the case of foot-and-mouth disease, except for area quarantine restrictions. The four infected premises were quarantined, cleaned and disinfected, and later tested in accordance with bureau regulations. It was, and still is, believed that no infected meat, meat scraps or infective material could have remained to be the possible cause of the third outbreak, which occurred near the City of San Jose, in Santa Clara County, about 500 miles from San Diego, in June of 1934.

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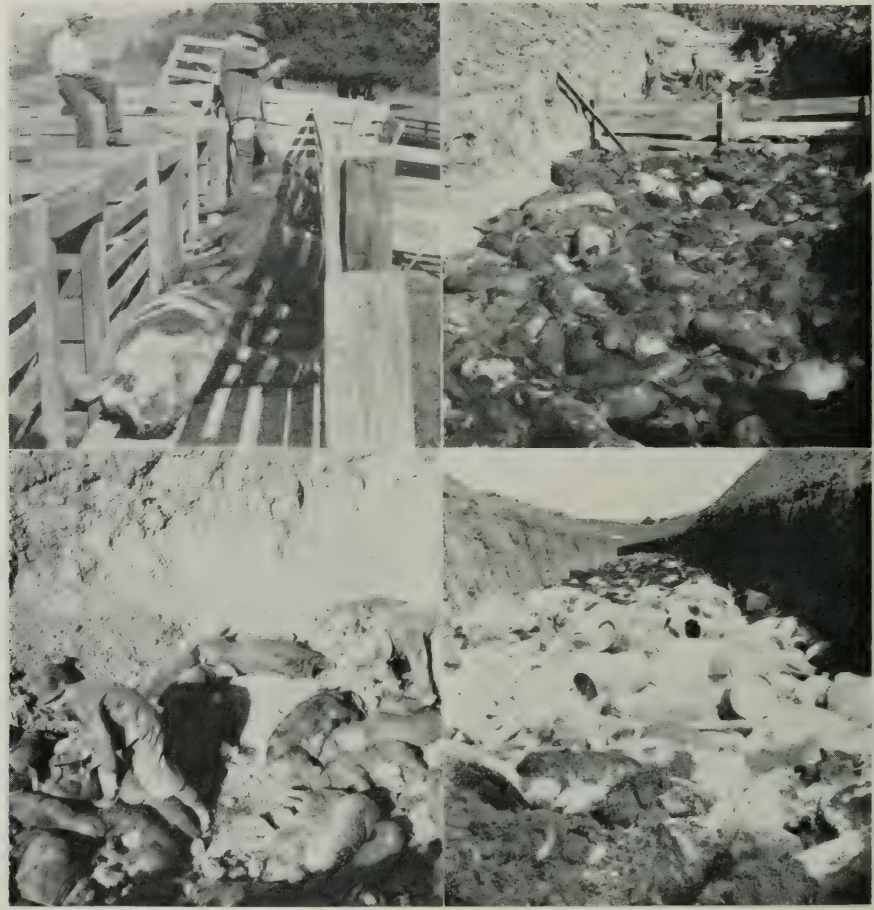
[1] For a scientific description of this phase of the problem see the article, "Some Factors in the Identification of the Vesicular Viruses," by R. A. Bankowski, D.V.M., Ph.D., Appendix No. 1 of this report.

[2] As reported by Dr. R. E. Duckworth, Assistant Director, California Department of Agriculture.

Illustration No. 2

CALIFORNIA DEPARTMENT OF AGRICULTURE TRIES SLAUGHTER AND BURIAL METHOD TO ERADICATE V.E. VIRUS, 1932



UPPER LEFT—Shooting condemned hogs. UPPER RIGHT—Trench full of condemned hogs. LOWER LEFT—Splitting open dead hogs to hasten decomposition of carcass. LOWER RIGHT—Quicklime covering split open carcasses for decomposition (just prior to filling trench with dirt).

On the twenty-second of June, 1934, 15 months after the San Diego outbreak of 1933, the disease made its appearance on a garbage feeding ranch near the City of San Jose. Diagnostic tests were conducted by Dr. J. Traum; these tests demonstrated that the disease was not foot-and-mouth disease, and he made a diagnosis of vesicular exanthema of swine. Because of this diagnosis, the U. S. Bureau of Animal Industry declined to participate in a slaughter program. Rigid quarantines were imposed, including 24-hour guards on infected premises, and the hogs permitted to recover.

The outbreak became widespread following discovery of the infection on the original ranch, and 27 premises were involved in five counties in Central California. In October, the disease appeared on four premises in Los Angeles and San Bernardino Counties. All of the cases occurred on garbage feeding hog ranches.

Proximity Eliminated as a Factor in the Spread of the Infection

It was noted at the time as being significant that there appeared to be no contact between some of the ranches affected. It was concluded, therefore, that proximity could be eliminated as a factor in the spread of the infection. In fact, the outbreak seemed to develop and spread, in most cases, without interchange of persons, animals or equipment between infected and noninfected premises.

There has been no better explanation for the 1934 outbreak than for the two which preceded it in 1932 and 1933. It is inconceivable that infective material of any kind could have carried over from either of the two earlier outbreaks and found its way into a swine herd 500 miles distant, 15 to 26 months later. The behavior of vesicular exanthema has been erratic and unpredictable from the very start. The origin of the first three outbreaks remains shrouded in mystery. No completely satisfactory explanation has ever been offered.

The outbreak which began in June, 1934, continued into May, 1935, when the last report of infection was received.

In the spring of 1936, the disease again appeared on 13 garbage feeding ranches in the San Francisco Bay area and on one such ranch at San Diego. In the south, the first infection was reported on April 8th; in the north the first report was on April 24th; and the last on June 20th. The outbreak at San Diego was extremely severe, involving about 90 percent of the hogs, but did not extend to other hog ranches in the vicinity. The disease was much milder in the north, and extended to 13 more or less widely separated locations without apparent regard to interchange of business or communication among the infected premises. Starting dates of the infections, the widely separated locations, and the character and course of the disease in both outbreaks are set down as items of evidence pointing to the erratic nature of the disease and to its unpredictable behavior.

Illustration No. 3
TYPICAL V.E. BLISTERS ON FOOT AND SNOUT OF HOG

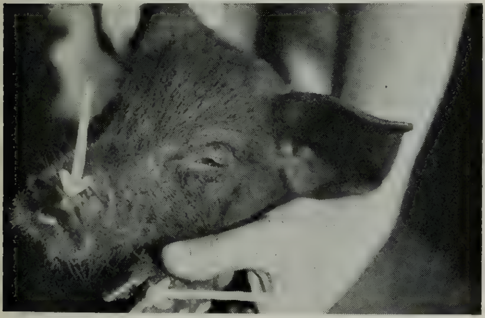
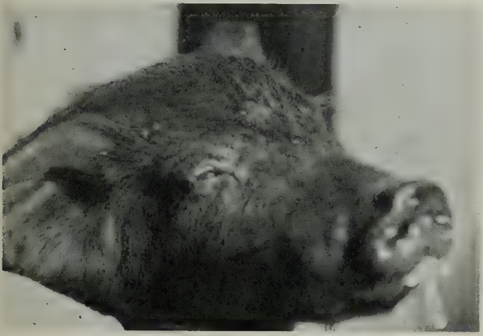


Illustration No. 4
TYPICAL V.E. BLISTERS ON HOG'S SNOUT



Forty-two Month Respite From Disease

With the last 1936 case reported on June 20th, there occurred a respite from the disease for three and a half years Then, on December 4, 1939, an outbreak was reported on a garbage feeding ranch in San Mateo County. Inoculation tests with horses, swine, cattle and guinea pigs established a diagnosis of vesicular exanthema. Rigid quarantines of infected premises were immediately established, and an economic quarantine was also placed in effect by notifying slaughterers, commission firms and stock-yard officials not to accept shipments of hogs from the described infected area until a definite diagnosis had been arrived at. The economic quarantine was relaxed when the differential diagnosis was established, and healthy swine from noninfected premises were permitted to go to slaughter. Careful inspections of hogs going to slaughter were conducted by a large force of veterinarians, who temperaturized each animal intended for shipment. This measure was an added precaution taken in hopes of picking up sick hogs not yet showing vesiculation.

The virus involved in the 1939 outbreak was exceptionally virulent, affecting in many units every animal in the pen. Animals in the fat hog units and in the brooder units appeared to be particularly susceptible, with a much lesser percentage of affected animals among shotes and smaller sized animals. At the end of the year, the infection was still acute, and the disease continued to spread.

In 1940 the disease spread progressively throughout the first six months of the year. It was diagnosed on 123 premises located in 25 counties, and involved nearly 223,000 hogs.

On October 5, 1940, another outbreak began in San Mateo County, and spread to 11 counties in the Bay area, the San Joaquin and Sacramento Valleys. The disease appeared in Los Angeles County, in the south, in December. A total of 57 premises were involved affecting over 91,000 hogs.

A group of purebred hogs from Riverside County entered at the Imperial County Fair of 1941 was found to be in the initial stage of the disease. As a result of contact, the disease spread to nine other entries, and in each instance the disease was carried back to the exhibitor's home herds. This experience indicates the ease with which the disease may be transmitted through contact. Observations in California over the course of 20 years have revealed a wide variance in the rate of spread of vesicular exanthema through contact. Often it is low, at times as low as 1 percent. However, that is far from being the rule. It is common to find from 30 to 80 percent of all animals on a ranch showing visible evidence of infection.

This rather lengthy history of vesicular exanthema as it existed in California from 1932 to 1942 is for the purpose of describing the vagaries of the disease and to set down in brief detail the experience California veterinarians have had in their efforts first to eradicate and later to control it.

Efforts at Control in California Have Been to No Avail

From 1942 to the present time, vesicular exanthema has appeared in more or less virulent form every year from one end of the State to the other. Quarantine measures have been in effect to a greater or lesser degree almost continuously for 20 years, whenever the disease appeared, and on two occasions complete eradication campaigns were employed. Permit systems of shipping point inspections of slaughter hogs have been tried over long-time periods at least three times. *Efforts at control in California have apparently been of no avail. Regardless of the method used or the length of time it was employed, the disease appeared again and again with little relation to time of year or location of origin.*

Let us review some of the California experiences and observations with a view to appraising present efforts at control, and the possible success of those efforts for the future.

When it became apparent that the disease was established in California, two pertinent problems faced veterinary officials. First, it was essential that foot-and-mouth disease be considered as a possibility whenever vesicular exanthema appeared. Second, every effort must be made to restrict spread of the infection. In order to screen out foot-and-mouth disease as soon as possible, and in a manner suitable to practical field procedure, it was decided to maintain one or more bovine animals in close daily contact in pens with hogs on all garbage feeding premises. When sick hogs are found and vesicles appear, virus is immediately collected, and transferred by inoculation to the required number of bovine animals. Quarantines are established, and daily observations of the test animals are made for a period of at least 10 days. This, then, is the practical approach to the problem of field diagnosis.

What happens when the disease is found in stockyards or slaughterers' pens? Quarantines are placed at once, and bovine test animals are inoculated with virus collected from the sick hogs. Observations are made daily for 96 hours when quarantines are revoked, and the affected hogs are released for slaughter in accordance with meat inspection regulations. This procedure of handling slaughter hogs affected with vesicular exanthema has been in effect since 1948. Obviously, the primary interest has been to eliminate the possibility of foot-and-mouth disease and to confirm a diagnosis of vesicular exanthema rather than to control it.

Not always has official thinking concerning vesicular exanthema been directed in a pattern designed to diagnose the disease, or, for that matter, even to recognize its existence. It was not until April of 1945 that vesicular exanthema was given official recognition under federal meat inspection regulations. Prior to that time, hogs affected with vesicular exanthema in any stage of acuteness were accepted for slaughter with only occasional condemnations of carcasses or parts. In other words, until April, 1945, so far as the federal meat inspection regulations were concerned, the dis-

Illustration No. 5
CLOSEUP OF V.E. BLISTER ON HOG SNOUT

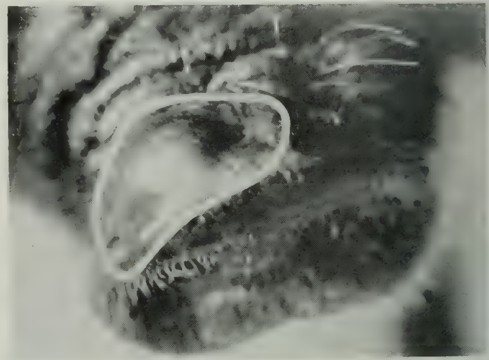
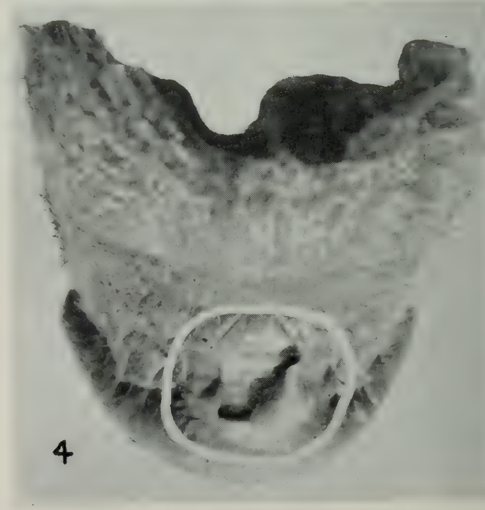
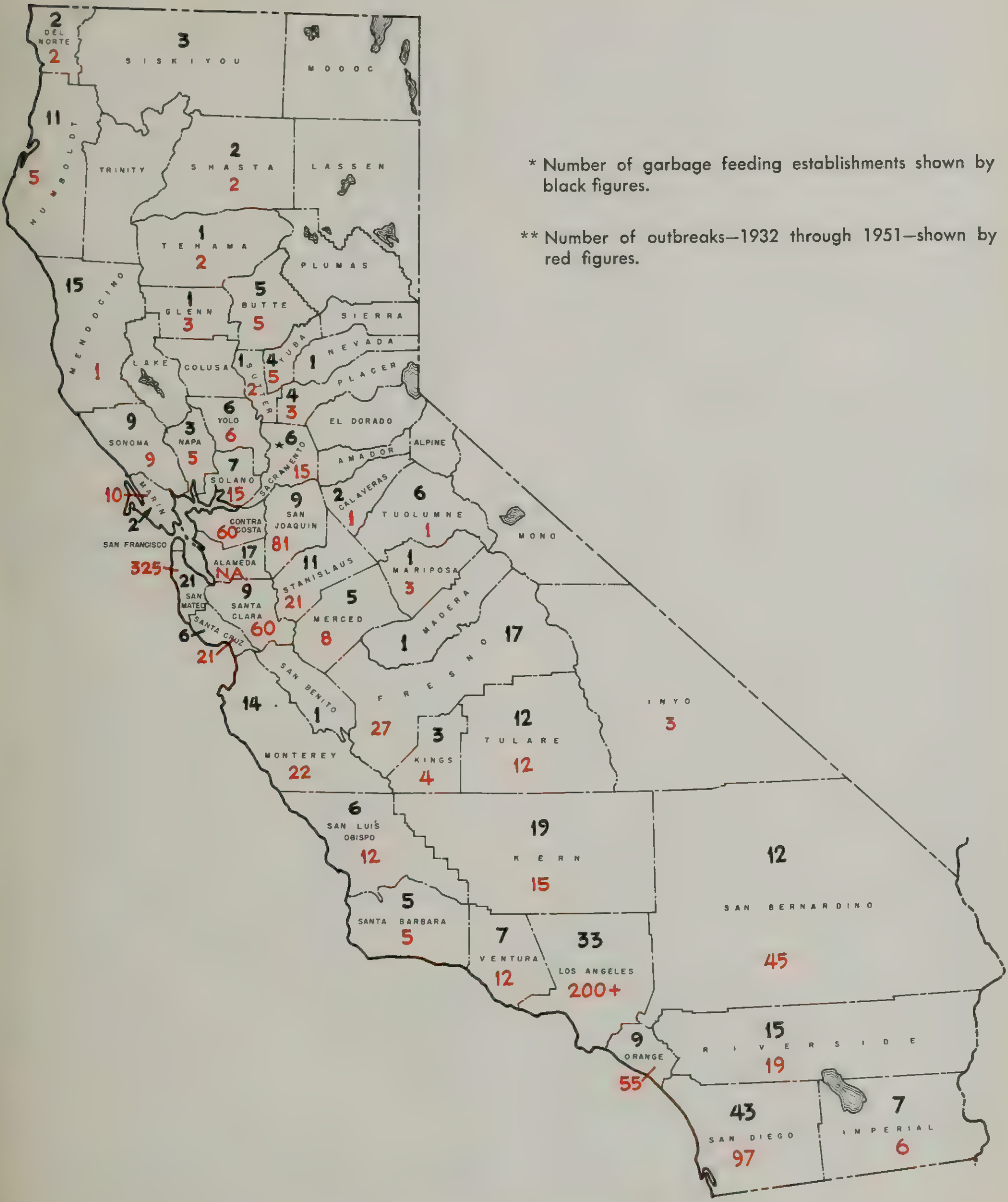


Illustration No. 6
BROKEN V.E. BLISTER ON HOG SNOUT LEAVING RAW ERODED SURFACE



MAP NO. 1

NUMBER OF GARBAGE FEEDING ESTABLISHMENTS AND NUMBER OF OUTBREAKS OF V.E. IN THE COUNTIES OF CALIFORNIA—1932 THROUGH 1951



* Number of garbage feeding establishments shown by black figures.

** Number of outbreaks—1932 through 1951—shown by red figures.

N.A.—Not available.

* As reported 1952 Joint Legislative Committee on Agricultural and Livestock Problems.

** As reported by Bureau of Livestock Disease Control, State Department of Agriculture, 1932 through 1951.

SOURCE: California Department of Agriculture.

ease did not exist. And yet, in spite of the fact that hundreds of acutely sick hogs were slaughtered and that carcasses or cuts went out to the trade, railroad and steamship commissaries and, very likely, to army and navy installations in some of the surrounding states, vesicular exanthema was not reported any place but in California. Why that was so and why it was not until June of 1952 that the disease made its appearance in garbage-fed hogs in Wyoming, are questions for which no answer can confidently be offered. Neither can a satisfactory explanation be offered for the rapid and widespread dissemination of the disease once it broke over the boundaries of California. It is another example of the unpredictable nature of the disease.

Quarantine, Slaughter and Disinfection by Themselves Are of Little Value in Control

The question is raised as to the value of restrictive quarantines, slaughter and disinfection. As stated earlier, these time-proved methods of eradication are not likely to succeed unless the disease is attacked at its source. California quarantines, which at times were quite rigid, seemed to control the disease not at all. The present U. S. Bureau of Animal Industry quarantines placed in effect after the disease was found in Nebraska in June apparently had little effect in controlling the disease, judged by its spread to several states after the quarantines were invoked. Quarantines and cleaning and disinfection of yards and pens, where the disease was known to exist, have been in effect for more than five months. Still the disease continues to spread to new areas. By March 16, 1953, it had been found in 38 states and the District of Columbia.

California has had much the same experience with vesicular exanthema during the many years of its existence here. Eight years ago, one [3] of the California observers reported that experience showed vesicular exanthema does not lend itself to practical control measures in the form of quarantines, shipping permits or other regulations.

TABLE NO. 1

INCIDENCE OF VESICULAR EXANTHEMA INFECTED PREMISES IN CALIFORNIA

For 20-Year Period—1932 to February 17, 1953

Year	*Garbage feeding ranches*	*Grain or country ranches*	*Stockyards and slaughter pens*	*Number of hogs involved*	*Remarks*
1932	5	0	0	18,747	Slaughtered
1933	3	0	0	5,533	Slaughtered
1934	31	0	0	95,917	
1935	4	0	0	10,100	
1936	14	0	0	13,625	Last reported infection June 20
1937	0	0	0	0	
1938	0	0	0	0	
1939	15	0	0	32,000	First reported infection Dec. 4
1940	161	7	1	277,250	
1941	155	15	0	160,104	
1942	15	0	0	84,300	
1943	122	3	14	288,355	
1944	154	7	10	439,876	
1945	58	0	2	127,620	
1946	52	0	1	108,732	
1947	129	10	4	212,535	
1948	24	0	0	84,566	
1949	101	0	4	199,875	
1950	169	6	9	272,722	
1951	53	1	4	82,442	
1952	104	4	108	224,976	Includes 104 V.E. importations
1.5 Mos. 1953 [1]	58	5	- - -	108,742	Includes 144 V.E. importations
Total	1,428	58	157	2,848,017	

[1] To February 17, 1953.
Number ranches in State: 400 garbage, 19,600 grain.
In California, there are roughly 20,000 premises on which hogs are raised. Commercial garbage feeding ranches number about 400 and have a hog population of about 230,000. Grain feeding or country ranches number about 19,600 with a population of 410,000 hogs.

WHY DO ANYTHING ABOUT VESICULAR EXANTHEMA OF SWINE IN CALIFORNIA?

During the course of study by the Joint Legislative Committee on Agriculture and Livestock Problems of this serious problem of vesicular exanthema of swine, the question has been raised numerous times—"Why do anything about V.E. now? After all, we have had it here in California for over 20 years and the hog growers are 'still paying their bills' and cattlemen haven't raised their voices to protest the risk to which it exposes their herds. Just because other states are now having the same problem that California has lived with for over two decades is no reason to pass regulatory legislation designed to eliminate V.E.!"

Unfortunately the solution is not quite so simple. In the first place, the very fact that California has had this highly infectious and contagious animal disease for over 20 years is not license in itself for continued lethargy. Further, now that the disease has "broken" from our borders and has been found in 34 other states, its existence has become a problem of nationwide consequence to the livestock industry. The Secretary of Agriculture has issued an official proclamation declaring a national emergency to exist, and is reported to have given serious consideration to the declaration of an extraordinary national emergency. Many of the states and the Bureau of Animal Industry of the United States Department of Agriculture have taken positive action to eradicate the disease. Such steps have been costly—in at least one state (Nebraska) a special session of the State Legislature was called for the express purpose of meeting the emergency created by an outbreak of vesicular exanthema. In others, the cost of indemnification, borne equally by the state and Federal Government, has run into the millions of dollars. Now then, it is reasonable to assume that the agriculture (and budget) officials in these other states and the

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[3] (B. B. White, Cal. Dept. of Agriculture Bull. July, Aug., Sept., 1944, Vol. XXXIII, No. 3).

Federal Government which have put up good hard American cash to eradicate V.E. are not likely to willingly permit California, or any other state for that matter, to continue the role of maintaining foci of vesicular exanthema virus to serve as a nest-egg of infection for the rest of the Nation.

V.E. Cost to Taxpayers Is High

In addition to the indirect cost resulting from a reduced supply of pork, the direct cost to the taxpayers of vesicular exanthema outbreaks is substantial. For example, it is necessary that all garbage feeding ranches in the State be carefully checked every 7 to 10 days and in some areas five- or six-day inspections are made. (Check bovine animals are kept in daily contact with the hogs on every premise.)

This work requires the services of three full-time state veterinarians. Twenty-one additional state men do part-time hog ranch inspections. Two counties, Los Angeles and San Diego have two or more men on full-time inspection and in six other counties the livestock inspectors do part-time inspection. The total cost per month for hog ranch inspections by state and county veterinarians amounts to nine thousand seven hundred eighty dollars ($9,780)—an annual cost to the taxpayers of $117,360 for routine inspections alone.

Shipments of diseased hogs into California from points in Nebraska and other states about the middle of June created an emergency which required immediate and expert attention. As long as the disease occurred only on California garbage feeding ranches it was reasonably safe to rely on routine virus tests of bovine animals. However, when sick hogs from the east arrived at unloading points with all the symptoms of a vesicular disease, it became necessary to immediately institute complete test animal inoculations in order to screen out the possibility of foot-and-mouth disease.

The tests were conducted by Dr. Jacob Traum and Dr. R. A. Bankowski of the University of California, assisted by state and federal veterinarians. Horses, cattle, swine and guinea pigs were used as test animals. Full routine tests for foot-and-mouth disease and vesicular stomatitis were completed before the disease was diagnosed as vesicular exanthema. Complete differential tests had to be carried out at four different locations (Stockton, Modesto, Los Angeles and South San Francisco) before it could be safely felt that the hogs were not suffering from foot-and-mouth disease.

The cost to official agencies in veterinarians' salaries, purchases of test animals, supplies, necessary travel expense and incidentals amounted to $8,267. This was for the period of June 24th to July 30th, and was over and above the annual costs cited above. Expense thus incurred to complete a differential diagnosis was only for the current vesicular exanthema emergency. Similar tests must be resorted to in the future (as was the case during the serious outbreak which occurred between January 9, 1953, and February 6, 1953), whenever hogs arrived in California suffering from a vesiculating disease resembling foot-and-mouth disease.

It can be seen that the practice of garbage feeding to swine exacts an appreciable expense to the taxpayers of this State. The annual cost within the State for routine ranch inspection amounts to $117,360.

There are additional public costs to the county and federal governments in regulatory activities. Death losses due to disease on feeding premises, losses in condemnations at time of slaughter, expenses to transportation companies and stockyards companies, incidental to cleaning and disinfection of cars, trucks and yards, make the raising of garbage-fed hogs an expensive enterprise out of all proportion to its individual economic importance.

The table below provides a breakdown of the costs cited above:

TABLE NO. 2

GARBAGE RANCH INSPECTION COSTS PER MONTH DUE TO VESICULAR EXANTHEMA

State	$5,100
Los Angeles County	3,000
Ventura	175
Orange	145
Riverside	100
San Bernardino	110
San Diego	900
Sacramento	150
Yolo	100
Total per month	$9,780

ADDITIONAL COSTS DUE TO JUNE, 1952, EPIZOOTIC
June 24th to July 30th

State	$5,985
Federal	1,840
Los Angeles County	442
Total	$8,267

SOURCE: California Department of Agriculture.

The indirect costs to consumers (taxpayers) of vesicular exanthema can be readily recognized when the high costs to meat packers and railroad companies of outbreaks of this disease are examined. For example, it was reported by Mr. E. F. Forbes, President of the Western Meat Packers Association to the Joint Legislative Committee at Sacramento on December 17, 1952, that,

> "the membership of our association slaughter around 65 percent to 70 percent of all hogs that are slaughtered here in the State, and we are the people who have really been hurt from a dollars and cents standpoint. I have been hearing it during this period of outbreak (V.E.) that we had 14 packing plants which were closed down. (In California). Nine of them were our members and five plants were owned by national packers—Swift, Armour, Cudahy, Wilson and another. So far, to date, I have had the State ask the packers what they estimated their losses from those outbreaks were (June-July, 1952), and so far we have had replies from about seven or eight companies, and their losses amount to about sixty-five thousand dollars ($65,000). I believe that when we hear from the other six companies, that probably the losses which we sustained from this vesicular exanthema outbreak, principally from hogs coming in from outside the State, will amount to about $100,000. I don't know of any producers being hurt—I think that we are the fellows that took the rap on this thing."

Illustration No. 7
RUPTURED V.E. BLISTER ON HOG LIP

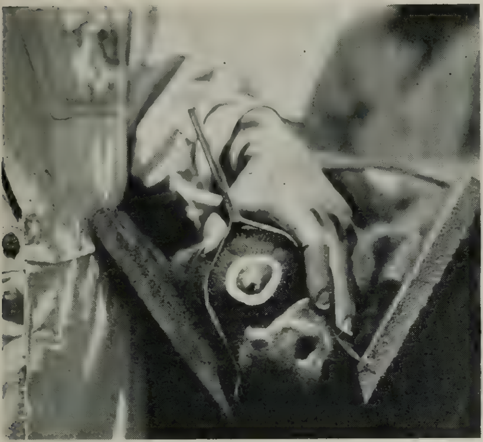
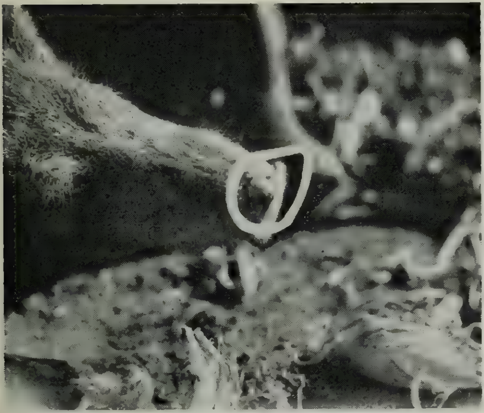


Illustration No. 8
UNRUPTURED V.E. BLISTER ON HOG SNOUT



In addition to this indirect cost is the added expense of the railroad companies as a result of V.E. outbreaks. The testimony of Mr. J. S. Vosburg, Union Pacific Company, Los Angeles, before the Joint Legislative Committee at a hearing on December 9, 1952, in Los Angeles, illustrates this point. Mr. Vosburg stated:

> ''speaking in relation to vesicular exanthema, one of the railroads that was particularly concerned, had several carloads held on our line by the BAI officials and that seriously inconvenienced the receivers in the Los Angeles area, and other places in the West Coast area. Of course, we, at all times, are happy to cooperate with the BAI officials in carrying out their quarantine laws and regulations.
>
> ''We did have, as I said, several cars held and were put to considerable inconvenience, delayed shipments and considerable expense, the bulk of the expense being passed on to the receivers by interstate commerce commission law.
>
> ''However, that does not cover the entire amount that the railroad has to pay. The railroad has considerable involved that has not been dispensed out to the receivers, and additionally some of the bills for this cleaning and disinfecting cars in accordance with the BAI regulation and orders has not been paid to the railroad as of this date.''

It has been reported that the cost to the Nation's railroads in this regard has amounted to hundreds of thousands of dollars. Inasmuch as such costs as these usually end up in the price tag to the consumer, it is important to note that V.E. is more than merely an unpleasant experience for a hog; it is also a costly item in the Nation's market basket.

Hog Cholera Serum Shortage

Further, the widespread existence of V.E. in the period June-December, 1952, has resulted in a serious shortage of serum for hog cholera—a disease which is one of the most important diseases to the swine industry in the United States. The vaccination with serum is vital to the continued existence of the swine industry of the United States and the hog cholera control program. As a direct result of the quarantine provisions invoked as a result of the vesicular exanthema outbreaks, the production of hog cholera serum has been materially reduced and is at a dangerous low level. (Appendix No. 3 is included to provide a more detailed description of this element of the problem).

Federal Livestock Officials Urge Immediate Action

The following summary statement by Dr. F. J. Mulhern, Veterinarian in charge of the Vesicular Exanthema eradication program for the U. S. D. A., is of considerable interest:

''The need to eradicate Vesicular Exanthema cannot be exaggerated.

1. Confusion with foot-and-mouth disease.
2. Danger to virus and serum production industry thus a possible shortage of virus and serum in case of an epizootic of hog cholera.
3. Expense to state and government to differentiate from Foot-and-Mouth Disease.
4. Expense to packing industry.
5. Expense to swine raisers who feed raw garbage.
6. Difficulties encountered in interstate commerce (Public Stockyards, Feed Water and Rest Station, etc).''

"As of March 16, 1953 vesicular exanthema has been found in 38 states and the District of Columbia, including the State of California. It has apparently been eradicated from the following 16:

Arkansas
Georgia
Idaho
Illinois
Indiana
Iowa
Maryland
Minnesota
Nebraska
North Carolina
Ohio
South Dakota
Tennessee
Utah
Wisconsin
Wyoming

The following 23 are known to be infected:

Alabama
Arizona
California
Connecticut
Florida
Kansas
Maine
Massachusetts
Michigan
Mississippi
Missouri
Nevada
New Jersey
New York
Oklahoma
Oregon
Pennsylvania
Rhode Island
So. Carolina
Texas
Virginia
Washington
District of Columbia

As of February 16, 1953, 100,801 swine have been slaughtered, either buried or processed, and 44,821 are still awaiting slaughter, not including approximately 70,000 infected swine in the State of New Jersey. As of this date, over $3,000,000 has been spent on this program. Practically 95 percent of the outbreaks are either directly or indirectly linked to swine that were fed raw garbage."

"Conclusion at this stage of the program. (After 6½ months of a declared national emergency.)

1. The present program cannot be successful unless it is supplemented with a national requirement to have all garbage properly heat treated before being fed to swine.
2. Since such legislation as a federal measure would be unconstitutional we must rely on the states to adopt effective restrictions on the movement of swine that are being fed raw garbage."

In addition, Dr. Mulhern, in corresponding with the California Department of Agriculture on February 10, 1953, had this to say:

> " * * * However, at this time I am somewhat optimistic as I believe that a more concrete program will be placed into effect in the near future—that is, we will demand in a cooperative program with the states that *they prohibit the movement of swine fed raw garbage* (by cooking) or that if they continue to feed swine on raw garbage that such swine can only leave their premises for slaughter and processing. In order to protect the states that pass such measures, it will be necessary for the Federal

Illustration No. 9

V.E. HOGS BEING DESTROYED, 1953

Photo courtesy of Daily Drovers Telegram, Kansas City

Hogs infected with V.E. virus are shot and carcasses disposed of. After removal of carcasses the entire area must be completely disinfected before it can be used again. (Note humped hog in right center of photo.)

Government to quarantine states that do not. This will definitely bring pressure from all angles, but I believe *that it is the only solution if we intend to eradicate vesicular exanthema.*"

In a communication on February 15, 1953, from the Bureau of Animal Industry (U. S. D. A.) there was outlined the following *tentative* proposed program for a strengthened vesicular exanthema eradication program:

"*More Vigorous Program Necessary.* Since November, 1952, the number of animals awaiting slaughter has increased weekly in spite of the fact that slaughter has been effected promptly in those states which have funds for indemnities. It has become increasingly clear that complete eradication will be a very long and costly procedure unless the present program can be strengthened. Therefore the following proposed program [4] is being considered."

BUREAU OF ANIMAL INDUSTRY PROPOSED PROGRAM[5]

"1. Continue quarantine of suspected infected and exposed premises.

"2. Continue differential diagnosis of suspected outbreaks.

"3. Continue appraisal of and indemnification for infected and exposed swine slaughtered in the eradication program provided cooperating states have funds to match federal funds. (The department to pay up to half the difference between the appraised value and the salvage realized, provided the State pays a like amount.)

"4. Continue liquidation of known infected and exposed swine by slaughter and either processing or burial.

"5. Continue cleaning and disinfecting all infected and exposed premises, equipment, and facilities following liquidation of infected and exposed swine.

"6. Federal prohibition of the interstate movement of all swine and all unprocessed pork or pork products from states in which vesicular exanthema is known to exist or in which there is reason to believe it may exist, unless (a) the infected and exposed animals are held in strict quarantine until they are slaughtered; (b) slaughter is consummated expeditiously with proper processing of the carcasses and offal of exposed and/or recovered animals; and (c) hogs fed on garbage are controlled as outlined in 7 and 8.

"7. Routine inspection of all commercial garbage-feeding plants.

"8. Movement of hogs from garbage-feeding plants:

"a. From those feeding cooked garbage—Hogs to be accompanied by a health certificate specifying animals originate on premises that cook garbage and that inspection of the hogs on the premises just prior to shipment disclosed no evidence of vesicular exanthema. Such a certificate to authorize the slaughter of such hogs without any processing requirements.

"b. From those feeding uncooked garbage—Hogs to be moved in sealed cars for immediate slaughter only and accompanied by health certificate stating that inspection of the hogs on the premises just prior to shipment disclosed no evidence of vesicular exanthema. Carcasses of such swine to be processed according to requirements for swine exposed to vesicular exanthema.

"9. No indemnities to be paid in any outbreak of vesicular exanthema on any premise or among swine from any premise where raw garbage is fed.

"10. Fees may be charged sufficient to cover costs of inspection and health certificates.

"11. Regular cleaning and disinfection of vehicles, cars, yards, pens, etc."

"*Discussion of the Proposed Program.* The recommendations just enumerated are stated generally on the basis of need without regard to whether the actions would be taken by federal or state agencies. Items 6 through 10 are closely related since their principal purpose is to cut off the spread of the contagion of this disease through feeding of raw garbage. Federal action in this respect probably would involve the following:

"1. A finding that the contagion of vesicular exanthema exists within and throughout the United States.

"2. On the basis of the above finding, place restrictions which will prevent the interstate movement of garbage containing pork and of hogs fed on such garbage.

"3. Give notice and after a reasonable period (say, 90 days) quarantine all interstate movement of swine and unprocessed pork or pork products from states wherein all (intrastate and interstate) garbage feeding is not regulated as indicated above. The department would offer cooperation with the states in working out a mutual system of supervision and certification to insure compliance.

"The carrying out of these proposals would require a great effort by the states as well as the department. The alternate measures with respect to those states wherein the garbage-feeding problem it not adequately handled are extremely severe, and will be costly. **However, the experiences with this disease clearly show that a lesser program will give little prospect of early eradication. It must be decided whether to carry out a full program with prospect of success or to withdraw from the field and restrict efforts to research, education and such**

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[4] For complete statement of proposed program, see Exhibit No. 13.

[5] For recommendations by the Advisory Committee on Vesicular Exanthema regarding this proposed program see Exhibit No. 15.

cooperation in control (without indemnities) as individual states may desire. Expenditure of funds cannot be continued without some change to make the program more effective. It is believed that the proposed program can be put into effect at no greater cost to the Federal Government than the present program. It is hoped that costs can be substantially reduced.

''In order to develop the stronger program these proposals are being reviewed informally to obtain the views of a good cross-section of responsible industry and State Departments of Agriculture thinking in the matter. Successful prosecution of a program of this kind must rest upon full participation and support of those concerned with animal industry.''

SECRETARY OF AGRICULTURE BENSON WRITES GOVERNOR WARREN CONCERNING V.E.

Subsequent to the above communication from Dr. Mulhern, Governor Earl Warren received a letter from Secretary of Agriculture, Ezra Taft Benson, in which the secretary officially called the Governor's attention to the seriousness of the threat which vesicular exanthema poses for the livestock industry in the United States. Mr. Benson in citing the rapid spread of V.E. throughout the United States that ''there is no choice but to eradicate it.'' He further goes on to say that:

> ''An effective eradication program must include strict quarantines applied to affected premises and control and official supervision over garbage-fed swine and garbage feeding premises.''

A copy of the full text of Secretary Benson's letter to Governor Warren on March 6, 1953, is presented below:

DEPARTMENT OF AGRICULTURE
Office of the Secretary
Washington

March 6, 1953

Hon. Earl Warren
Governor of California

Dear Governor Warren: Vesicular exanthema, a serious disease of swine, is threatening the livestock interests of this Country. The livestock interests in your State and your livestock sanitary officials have had considerable experience with this disease and are familiar with its implications as they have a bearing on the necessity for a national program of eradication.

When vesicular exanthema spread from California to other states in June, 1952, it was agreed by livestock interests and livestock sanitary officials, state and federal, that vesicular exanthema must be eradicated. Since that time the disease spread to 37 states and is still present in 21 states, strengthening the veiw that there is no choice but to eradicate it.

This department has undertaken to assist and encourage affected states in their eradication programs. An effective eradication program must include strict quarantines applied to affected premises and control and official supervision over garbage-fed swine and garbage feeding premises. These controls being local in nature have traditionally been exercised by state authority.

Enclosed is our draft of department regulations proposed for early issuance as a means of fulfilling our obligation to the states by controlling interstate movement of swine and swine products in such a way as to protect those states that are free of the disease and those states which are taking adequate measures for the eradication of the disease.

Also enclosed are an outline of the proposed program that was discussed recently with representatives of producer groups and state officials and copy of the recommendations of an advisory committee drawn from all interested groups.

The purpose of this letter and its enclosures is to inform you fully on the department's plans with respect to meeting its responsibility in eradicating this serious swine disease. We want to be helpful to you in your state program as an integral part of the national effort. Most states find they urgently need additional legislation.

We are sending copies of this letter to the head of your Department of Agriculture and the state livestock sanitary official.

Sincerely yours,
(Signed) Ezra Taft Benson, Secretary

U. S. D. A. Urges California to Process Garbage

In addition to Secretary Benson's letter to Governor Warren and to Dr. Mulhern's observations, the remarks of Dr. W. A. McDonald, Inspector in Charge (California) of the United States Bureau of Animal Industry, to the Joint Legislative Committee on Agriculture and Livestock Problems at a hearing on December 9, 1952, clearly sets forth the position of the U. S. D. A. insofar as vesicular exanthema eradication in California is concerned. Excerpts from this testimony are herewith presented:

"**Dr. McDonald**: Yes. Now, I believe it was brought out by Dr. Duckworth that all of the states with the exception of California and New Jersey are cooperating with the bureau in an effort to eradicate this disease, and reports——

"**Senator Hatfield**: By that, you mean by slaughtering and burial and disinfecting?

"**Dr. McDonald**: Disposal of infected animals and disinfection and quarantines. Now, you were discussing a while ago the cost of eradication, a program of eradication, as it would apply to California. Now, back in the eastern states, as I am sure you know, they salvaged these hogs from these infected premises where they had to slaughter them, by holding the hogs under quarantine for several days, several weeks, until the disease had run its course in the herd. And then they slaughtered those hogs and processed the meat and they salvaged quite a lot of the cost of the eradication program in that manner.

''Now, I don't know whether that would be considered in your program in California, or not, but I thought it was something that may be taken into consideration.''

''Now, regarding the bureau's position in an eradication program in California, I was advised by Washington office that due to the magnitude of the eradication program in California, it would be necessary to have a special act of Congress with an appropriation to cooperate in the California program. In these other states where they have declared it an emergency, they have been able to transfer funds and finance the bureau's part of the program in these states by transfer of funds without an outright appropriation of Congress.

"But, due to the fact that the cost in California would be considerable, I am advised it would be necessary to get a special act of Congress or a special appropriation from Congress to finance the program here; and that if and when California decides that they want to go into an eradication program here, and the bureau is requested to cooperate in such a program, the bureau would go before Congress and ask for the necessary appropriation.

"**Senator Hatfield**: Doctor, has the bureau any recommendation to make, or any position? I am asking now as to the bureau in relation to the legislation that it is recommended by our State Department of Agriculture as to the compulsory cooking of garbage?

"**Dr. McDonald**: Yes, sir, the bureau is as much in accord with that provision——

"**Senator Hatfield**: In other words, the bureau recommends to the Legislature that we enact legislation requiring the compulsory cooking of garbage?

"**Dr. McDonald**: Yes, sir, that is correct. In fact, Dr. Fladness (U. S. D. A.) advised me yesterday that the bureau would hesitate to go before Congress and ask for an appropriation of the amount necessary to attempt eradication in California without provision of cooking of garbage.

"**Senator Hatfield**: *In other words, the position of the bureau on that is, that without compulsory cooking of garbage it would be a rather hopeless task to try to eradicate vesicular exanthema here in the methods they have used in other states?*

Dr. McDonald: *With the extensive infection involved in California, yes, that is correct.*

SOLUTION—PROCESS GARBAGE BEFORE FEEDING TO SWINE?

The most controversial issue which has been raised in the committee's investigation of the V.E. problem is the future of raw garbage as a feed for swine. The California Department of Agriculture takes the position, based upon a considerable amount of field evidence accumulated in over 20 years of fighting this disease, that raw garbage is the largest single factor contributing to the spread of V.E. The department is on record as declaring that to attempt to control and eradicate V.E. in California without the simultaneous action of prohibiting using raw garbage as a feed for swine would be "folly and almost criminal." The department also holds that prohibition of the use of raw garbage as a feed for swine would, in conjunction with an initial eradication effort, serve to wipe out V.E. in California. As support for its position it points to the fact that over 96 percent of the known outbreaks of V.E. in California since 1932 have occurred on garbage feeding premises, yet of the total of 20,000 premises upon which hogs are raised in California, **only 400 are commercial garbage feeders (or 2 percent of the premises caused 96 percent of the incidence of vesicular exanthema).**

As further evidence in its case against raw garbage as a feed for swine the department cites the fact that both Canada and England which require that all garbage be processed prior to being used as a feed for hogs have not had a single reported case of vesicular exanthema of swine (*and do not have a hog cholera problem*). Further, it cites as evidence for the record statements by *Dr. Fladness, Director of the Bureau of Animal Industry, United States Department of Agriculture, and Dr. W. A. McDonald, Inspector in Charge for the bureau in California,* to the effect that "the bureau would hesitate to go before Congress and ask for an appropriation of the amount necessary to attempt eradication in California without provision of cooking of garbage."

In a paper [6] dealing with vesicular exanthema and trichinosis, Dr. R. E. Shope, a scientist with an international reputation for excellence in the field of animal diseases, stated that "It is the hypothesis of this paper that the prevention, control and eradication of trichinosis, vesicular exanthema and foot-and-mouth disease depend upon the elimination of raw garbage feeding of livestock in the United States." This statement was further emphasized by *Herman C. Aaberg, Director of the Livestock Department, American Farm Bureau Federation,* when he stated "It is generally agreed by scientists and State and Federal Livestock sanitary officials that the solution to the problem is the cooking or processing of garbage in such a way as to kill the virus. Unless this is done, the constant threat of infection through garbage feeding will continue to exist."

In contrast to this is the position of the garbage feeding hog ranchers in California as expressed by them individually and through the Swine Department of the *California Farm Bureau Federation*; and the position of California cities as expressed individually and through their spokesman the *League of California Cities.* (Many California cities are currently obtaining revenue by selling garbage collected within their border to garbage feeding hog ranchers.)

The C. F. B. F., through its legislative representative, stated at a hearing of the Joint Committee on Agriculture, on December 9, 1952, that "The position of the garbage hog feeders * * * is not necessarily one of opposition to the proposal of * * * Dr. Duckworth (Assistant Director of Agriculture). **The hog feeders definitely feel, however, that there are questions that need to be answered before they can be assured that vesicular exanthema will be eradicated through the passage of a law making mandatory the cooking of garbage. There is also a question in the minds of the group as to whether or not they can comply with regulations which the Director of Agriculture will necessarily have to establish in connection with the mandatory cooking of garbage and still obtain a product of adequate feeding value at a practical cost." The position of the C. F. B. F. on this matter differs from that taken by the American Farm Bureau Federation as evidence in Exhibit No. 2 of this report.**

The League of Cities' position was summarized in part by Mr. W. A. Schneider, Waste Disposal Engineer, City of Los Angeles, as follows: "From information which we have received from our contractors in the past, hog feeders who have undertaken the cooking of garbage for short periods of time on a trial basis to determine its success, we are led to believe that the enforced cooking of garbage would eliminate garbage as a hog food, and that in such elimination the hog feeding and the processing industry in this area would vanish. **We believe that it would require the cities to adopt alternative methods of garbage disposal since hog feeding would no longer be available to us. We believe that it would cause the cities to lose their present revenues from garbage sales and to incur substantial costs in lieu thereof for other types of disposal."**

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[6] "Administrative Considerations of Garbage Feeding With Reference to Vesicular Exanthema and Trichinosis," by R. E. Shope, Oscar Sussman and R. A. Hendershott. 1952. See Exhibit No. 1.

Illustration No. 10
TYPICAL V.E. BLISTERS ON HOG FEET

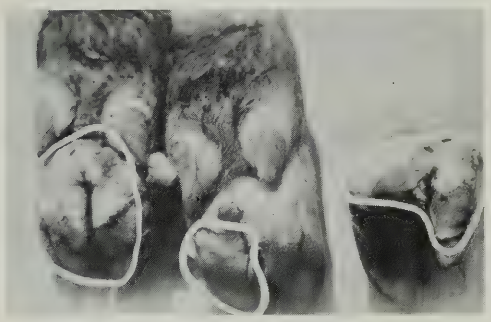
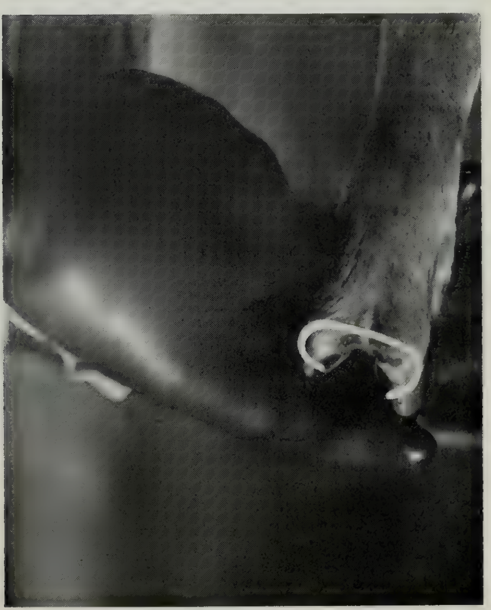


Illustration No. 11
RUPTURED V.E. BLISTERS ON HOG FOOT



Severe lameness caused by such blisters have caused hogs to lie down and not come up to eat and resulted in causing death through starvation.

Appendix No. 9 presents a summary of hog ranch operations at state institutions in California, as of December, 1952. It is important to realize that these operations will be affected by any legislative action relating to the feeding of raw garbage to swine.

SOLUTION—DEVELOPMENT OF A VACCINE?

During the course of the joint legislative committee hearings the question was raised as to the effectiveness of a garbage cooking law—the point being that 100 percent enforcement would be necessary and that the policing of such a law may render it valueless. The alternative proposed was to immediately develop a vaccine through an intensive research effort. It was argued that such an approach to vesicular exanthema of swine—development of a vaccine which would give immunity to this disease—would present a lasting solution to this livestock disease problem. *However,* experienced scientists hold little hope for either the "immediate" development of such a vaccine or that it would be a satisfactory long range solution. The following excerpts from the transcript of the December 17, 1952, meeting of the Joint Legislative Committee on Agriculture and Livestock Problems indicate some of the problems in this regard:

> "**Mr. Forbes** (President, Western Meat Packers Association): What I am looking for is a permanent cure for this disease in the same manner in which you cured hog cholera, anthrax, and black leg. We today vaccinate our calves in the spring with two or three different kinds of vaccine. If we can't develop a vaccine here that would cover all four strains, we could probably shoot these hogs with four shots. I sometimes shoot my cattle with three shots in the spring at the same time that we are marking and branding. It is no difficulty. So that I think the emphasis before we go off the deep end and set up a drastic garbage cooking[7] law when we don't know that it will eliminate it entirely—we only know that the greater incidence in this vesicular disease comes from hogs that have been fed raw garbage, but I do think that this committee and the Legislature should give the University of California enough money to do a real quick fast job in developing a vaccine.
>
> "I also think this committee should ask the Federal Government to devote a good part of their efforts at the new foot and mouth lab in New York state to developing a vaccine for this as well as for foot and mouth because, after all, this is just a brother to foot and mouth. It is foot and mouth in hogs instead of cattle, and cloven hoofed species. So that we are not, as I say, it may come to a garbage cooking law as one of the steps, but we think that more important than that is this immediate work of developing of a vaccine. That will be a preventive against this disease, and we know it can be done.

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[7] Mr. Forbes and the Western Meat Packers Association later took a different view of garbage cooking. See Exhibit No. 10.

"We know that today we have filterable material that will isolate these viruses which they claim they never could do with foot and mouth. This virus can be isolated and under research and knowledge that we have today any virus that you can isolate you can build a vaccine from.

"**Senator Hatfield**: In other words, you recommend to the Legislature that they see to it sufficient funds are available to some appropriate research agency to work along the lines of developing a vaccine?

"**Mr. Forbes**: That is right, and enough money to do the job, do it right, do it quick.

"**Senator Hatfield**: What would you consider the appropriate agencies?

"**Mr. Forbes**: I would say the University of California.

"**Senator Hatfield**: How much money do you think would be the amount to do it?

"**Mr. Forbes**: I think to do the job right, because they will farm out certain of the work to private agencies such as Stanford Research Institute and other research agencies like the government does, for research on various projects, but I think they ought to be given a quarter of a million dollars to do this job. I think it is far more important that in addition to the garbage cooking problem to get some real research and development on a vaccine that will create an immunity against this disease just the same as the hog cholera.[8]

Later at this hearing, Senator Hatfield questioned Dr. R. A. Bankowski, University of California scientist, on the development of a vaccine for vesicular exanthema:

"**Senator Hatfield**: I am asking about the possibility of developing a vaccine quickly. I know nothing about it. We know that there are vaccines developed for foot and mouth disease in Brazil and Europe and a great many other places and they were developed long before they had the outbreak down in Mexico.

"**Dr. Bankowski** (University of California): That is right, sir.

"**Senator Hatfield**: We know the use it was put to was not in any sense the use like smallpox, giving a long immunity. It was just a short immunity in order to get a sufficient control and that basically it was a slaughter method that eradicated the disease in Mexico.

"**Dr. Bankowski**: That is right. As far as the vaccine for vesicular exanthema—we had one type of virus there (in hoof and mouth). In California we have four types that are thoroughly entrenched within the State. That would mean we would have to have four separate vaccines. In the event of an impending outbreak we would have to know the type of virus concerned. Assuming then that we have things pretty well under control and we have done about fifteen years of research, we have good vaccines, we have good methods of identifying the virus infection, still those animals that were in an area could be vaccinated, those in the immediate vicinity would probably have to go under quarantine. So, if they are vaccinated, it would take some time to identify the type of virus involved. Then there is a period of vaccination. Assuming the vaccine is good, it will require perhaps seven days, maybe two weeks or three weeks to produce an immunity. So, your animals are still susceptible for maybe a week, ten days, or three weeks before they are thoroughly immune against any impending infection. So there are problems wrapped up with the vaccines themselves, let alone the problem of cost.

We have not eradicated hog cholera by no means. In fact, it is one of our most prominent diseases within the livestock industry and I hate to guess the amount of money spent on the vaccination of hogs against hog cholera.[9] We think there is another way of eradicating hog cholera and it is not by vaccines or vaccination. We hope that cooking of garbage or taking care of garbage in some way—well, we know it will certainly have a marked effect upon decreasing hog cholera as a disease in hogs.

"**Senator Hatfield**: The cooking of garbage like the vaccination down in Mexico for foot and mouth disease is merely to give us sufficient control so we can go in and use an extermination method, isn't that the theory?

"**Dr. Bankowski**: That is the theory.

"**Senator Hatfield**: And any thinking that the cooking of garbage is a complete remedy for vesicular exanthema is only getting a very small portion of the problem. It would only give the type of control that would make it possible to use the extermination method as they did in Mexico with the vaccines, isn't that right?

"**Dr. Bankowski**: That is right, sir.

"**Senator Hatfield**: Now, you tell us about these four different diseases and all the difficulties assumthat you had the vaccines. What I want to ask you is what development, if any, has been made in the development of the vaccine for any one or all four of the types of vesicular exanthema that you have been able to distinguish in California?

"**Dr. Bankowski**: We have not done any work on a production of a vaccine thus far.

"**Senator Hatfield**: All right. Where has there been any work done?

"**Dr. Bankowski**: No work has been done anywhere on the production of vaccines for vesicular exanthema to date because for one reason vesicular exanthema is only present in California. No other country, no other state has ever worked with vesicular exanthema, except for a short period when the United States Bureau of Animal Industry has worked with it following its discovery in California in 1932. The United States Bureau of Animal Industry at the present time is establishing a big program on the study of vesicular exanthema as a disease. They are going to start a program.

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[8] See page 98, Part III, for Mr. Forbes' comments on the university's proposed research budget.

[9] $40,000,000 annually.

"**Senator Hatfield**: The B. A. I. is?

"**Dr. Bankowski**: Yes.

"**Senator Hatfield**: As a part of that program will they develop the possibilities of developing a vaccine?

"**Dr. Bankowski**: I doubt whether they are going to start on the development of a vaccine at the present time, Senator Hatfield, because our thinking is alike in that we cannot start on a vaccine unless we know more about the viruses themselves. In the first place we don't know how to identify the virus in a relatively short time. That is our big concern. It generally required 10 days to determine which of the three diseases we have by the present animal inoculation methods of diagnosis. We would like to cut that down to 24 or 48 hours, if we can, by test that we could run in a laboratory.

"**Senator Hatfield**: *Doctor, then, in other words, you don't hold out much hope for a solution of the problem of attempting to develop a vaccine?*

"**Dr. Bankowski**: *Not in a year or two, no. It depends entirely upon our progress.*"

Supplementing this is the statement on February 10, 1953, of a high United States Department of Agriculture, Bureau of Animal Industry, official that three of the leading livestock disease control scientists in the United States feel that "Mr. Forbes is holding out vital information that they have no knowledge of whatsoever when he states that a satisfactory vaccine could be developed rapidly with approximately a quarter of a million dollars."

Therefore, it is readily apparent that the course of action recommended to the Joint Committee on Agriculture by the qualified scientific and technical representatives appearing before it does not strike an harmonious chord of agreement from other interested in this problem. The following sections of this report will present as concisely as possible the case for prohibiting the use of raw garbage as a feed for swine and the reasons offered by the C. F. B. F. and League of California Cities for opposing this action.

PART II

THE CALIFORNIA DEPARTMENT OF AGRICULTURE CASE FOR PROHIBITING THE FEEDING OF RAW GARBAGE TO LIVESTOCK

The position of the California Department of Agriculture is presented with a view of avoiding as much repetition as possible and still be consistent with the facts involved in this controversy.

RAW GARBAGE SHOULD NOT BE FED TO LIVESTOCK

The pressing question is whether or not raw garbage is to be prohibited as a feed for hogs. The only alternative is to cook, or otherwise heat-treat, garbage before it is fed. It is around this alternative that the present controversial situation developed. The problem of cooking garbage was abruptly brought to a head by the appearance of vesicular exanthema in Wyoming and Nebraska early in June, 1952, and its subsequent spread to practically all sections of the United States, in fact the disease is now known to exist, or has existed, in almost 40 states and the District of Columbia. In several of the states it appears well on its way of becoming established in garbage fed hogs in the manner familiar to California since 1932.

Immediately after the disease appeared in mid-western and some of the eastern states, the Secretary of Agriculture and the Bureau of Animal Industry were called upon to declare an "*extraordinary* national emergency" or "national emergency". The Secretary found and declared a national emergency to exist on August 1. He decided against an "extrordinary emergency".[1] The secretary and the Bureau of Animal Industry were called upon urgently from all parts of the Nation, by the American Farm Bureau, State Farm Bureaus, producers and producer associations, livestock associations, American Meat Packers Association, and many others, to institute and carry out a vigorous campaign to eradicate V.E. from the United States and to eliminate all *possible sources* of *spread, perpetuation* and *dissemination* of the disease.

The Bureau of Animal Industry has undertaken this task. Eradication programs have been effected in cooperation with at least 22 states, and, as of February 16, 1953, upwards of 100,000 hogs have been killed and buried or slaughtered and processed, at a cost to the taxpayers of more than $3,000,000. There can be no question but that the eradication effort will be carried on to a final conclusion, and to effect success of the campaign it is equally certain that elimination of every source of spread, perpetuation and dissemination will be finally realized by prohibition of the feeding of raw garbage.

However, although raw garbage has been prohibited as a feed for livestock in some states (10 in number), such action has not been nation-wide. As a consequence, and despite this large expenditure of time and money, there occurred in January and February, 1953, a new outbreak of V.E. paralleling that of June and July, 1952. In fact the importations into California between January 9 to February 6, 1953 of infected shipments *exceeded* by *66 percent* the number of infected shipments received between June 24, and July 31, 1952, the time of the first national outbreak. A summary of these data is listed below:

Date	*Infected shipments*	*Plants involved*	*Hogs*
1/9/1953 to 2/6/1953	144[2]	15	25,000
6/24/1952 to 7/31/1952	87	12	13,000

At this point it may be said that had the State of California maintained the eradication program on which it embarked in 1932, through 1952, and permitted the feeding of raw garbage to continue, it would have been necessary to destroy two and a half million hogs at an estimated cost in indemnities of over $50,000,000, provided, of course, that the hog feeders could have remained in business in spite of a continuous slaughter program and if the Legislature had been foolhardy enough to permit such a profligate waste of tax moneys to continue. Without a law prohibiting the feeding of raw garbage to livestock, California's experience would in all likelihood have been the same as that cited above for the federal authorities.

Regulatory officials, federal and state, are duty bound to face the facts honestly, and to tell their people truthfully that any attempt to eradicate vesicular exanthema by means of slaughter contingent upon indemnities paid out of public funds *should be done subject to mandatory cooking of garbage or the complete discontinuance of garbage as a feed for swine.* To continue indemnities under such a plan is contrary to sound principles of disease control, and is simply a case of throwing good money after bad. From field evidence gathered over 20 years of inspections and observations in California, it may reasonably be concluded that a program of *temporary* depopulation of garbage feeding ranches, combined with cleaning and disinfection will fail of

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[1] In a *national* emergency the Federal Government may participate on a 50-50 basis in sharing with the individual states the cost of indemnification for slaughtered animals. In an *extraordinary* emergency the Federal Government may pay 100 percent of the indemnification cost.

[2] For information as to the heritage of the virus in these shipments see Dr. R. A. Bankowski's paper (supplement) in Appendix No. 1 of this report.

Illustration No. 12
SLAUGHTERING V.E. HOGS, 1953

Photo reprint courtesy of Daily Drovers Telegram, Kansas City

Following the shooting of these hogs infected or exposed to V.E. virus the carcasses must be disposed of and the area completely disinfected before being used again.

success unless supplemented by other measures. Granting that such a procedure is fully carried out, the California experience indicates that it would be but a matter of time when the disease would reappear through the medium of raw garbage. Continue to feed raw garbage to swine and, regardless of quarantines, slaughter or other measures, there will be a continuation of the disease.

WHAT ABOUT RAW GARBAGE AS A FEED IN CALIFORNIA?

This brings us to the garbage situation in California. What is there to do about it and how is it to be done?

There is no question about *garbage* being the *source of many diseases of swine* including vesicular exanthema. Scientific research workers and experienced veterinarians are agreed that this is true. Arguments or pleas that no scientific proof is available which positively incriminates garbage are meaningless, even though such arguments are made in all sincerity. The question should not be permitted to cloud the issue as it affects the California problem.

The eradication effort elsewhere in the Nation will probably require in the neighborhood of two years. It is not only unreasonable, it is unthinkable, to suppose, or to hope, that when the rest of the Nation cleans up V.E. California will be permitted to maintain a nestegg of infection because its local governments and the hog feeders believe it will be uneconomical for the hog feeder and too costly for the cities to cook or otherwise treat garbage before feeding. In view of the national situation and taking national thinking into account, it would seem to be imperative that governmental subdivisions of California face the cold fact that raw garbage feeding must be discontinued if V.E. is to be eradicated and do everything necessary to prepare themselves for that eventuality when it arrives. Governmental subdivisions have found it necessary to face and to meet the sewage disposal problem by building and operating sewage treatment plants. The old sewer pond and other means of sewage disposal had to be discontinued for obvious reasons. Conversion of sewage disposal from ponds, sloughs and bays to treatment plants was extremely costly, but necessary. It may be equally necessary for the local governments to provide, or to assist in providing, facilities for heat-treating garbage. The only alternative is to dispose of that part of the daily waste production now going as hog feed, by whatever other means of disposal available or possible of construction. If city and county authorities are unable to fully recognize the seriousness of the approaching eradication movement and fail to prepare their respective governments to meet the emergency, their problem is certain to be more acute than it appears to be at present.

Veterinarians, experienced in studies and observations of vesicular exanthema, and scientific research workers of the University of California are unanimous in the opinion that the disease cannot be eradicated as long as hogs are fed on raw garbage. Two unsuccessful attempts at eradication in California by the slaughter method lend support to the conclusion.

The Department of Agriculture accepts this opinion and offers to this joint legislative committee the recommendation that legislation governing the practice of garbage feeding be considered as being essential to the agricultural economy of California, an important measure in civil defense and necessary to the ultimate eradication of vesicular exanthema. It offers the following six points as a summary of the field evidence substantiating this viewpoint:

1. The three initial outbreaks (1932-33-34) occurred in garbage fed hogs.
2. All subsequent outbreaks (1935-1952) began in garbage fed hogs.
3. When Los Angeles and Orange County feeders moved from their original premises to new locations in the Newhall-Saugus area the premises were established on clean soil free of hogs, garbage or swine infections. Within 4-12 months after occupying the new premises V.E. made its appearance.
4. When the disease broke out of California in June, 1952, it made its appearance in garbage fed hogs at Cheyenne, Wyoming.
5. In California there are approximately 20,000 premises on which hogs are raised. Of this number, 400 premises are garbage feeding ranches. Over the 20-year period from 1932-1952 there have been 1,428 outbreaks of V.E. on the 400 commercial garbage feeding ranches. On the remaining 19,600 grain or country ranches there have been 58 outbreaks of V.E., nearly all of which were directly traceable to an interchange of animals to or from garbage feeding ranches.
6. The 58 outbreaks on grain or country ranches are notable because in not a single instance has there been a recurrence of the disease after it had run its course and the hogs recovered.

The Department of Agriculture does not wish to inflict unnecessary hardship on the hog feeders of California, nor to unduly interfere with or disrupt presently used methods of garbage disposal. For those reasons, the department believes that any legislation governing the feeding of garbage carry an effective date commencing two years after the enactment of said legislation.

A time period of two years will permit local governments to rearrange their fiscal needs to meet a new situation and to arrange their budgets accordingly. It should take at least two years to set up facilities for heat-treating garbage or to prepare for alternate disposal methods. The hog feeder also is entitled to a reasonable length of time in which to convert his operations or to liquidate his holdings, as he sees fit.

Current Garbage Cooking Experience in Other States

Omaha, Nebraska. The *Nebraska* Legislature, which met in an extraordinary session for the purpose of handling the vesicular exanthema emergency, passed a law requiring the cooking of garbage, effective December 6, 1952. Subsequent to this time the City of Omaha emptied its garbage into the Missouri River, but due to protests this procedure had to be altered. As a result of overtures made by Omaha officials to a local organization, experiments were begun to process this city's daily garbage collection. In February, 1953, experimental efforts had been completed and the plant was processing all of the household, hotel and restaurant garbage of the City of Omaha, amounting to about 60 tons a day. *If operated on a 24-hour schedule this plant is capable of processing 300 tons of garbage per day.* The operator of the plant reported late in February, 1953, that the plant had reached the peak in operations and that it was just about breaking even financially. He was of the opinion that the processing methods had been perfected to the point where from now on they could operate in the "black"! (With the help of a city paid subsidy of $2,500 per month.)

It is important to note that this reportedly successful solution to the disease and disposal problems came about in Omaha, Nebraska, within a comparatively short time after the initial effort was made by private enterprise and apparently without any long term research projects by the state university. For more complete statement and illustrations of this plant, see Exhibit No. 28.

Cheyenne, Wyoming. This is another area where private enterprise has served to meet a serious situation and has established on its own the necessary facilities to process raw garbage to prevent the spread of animal diseases. Rancher Harold Wright operates a spread just east of Cheyenne where he feeds garbage to approximately 1,500 hogs. In 1952 Rancher Wright's swine became infected with the dreaded vesicular exanthema and it became necessary for him to depopulate and to clean and disinfect his ranch. This was completed in November, 1952, and he began to repopulate again, and by February, 1953, had built the herd up to 600 hogs. However, he no longer feeds *raw* garbage to his animals, but as a result of considerable research into the cause of vesicular exanthema and the methods of avoiding it, he has established cooking facilities on his ranch and now feeds them *cooked* garbage. In fact, Mr. Wright has stated to the State Veterinarian of Wyoming that a garbage feeder who is not cooking the garbage is at least 50 years behind the times. For a more complete statement and illustrations of this cooking operation, see Exhibit No. 36.

Chicago, Illinois. Hotel and restaurant garbage (amounting to approximately 20 tons per day) is collected in three trucks, each equipped with a permanent installation of perforated pipes on the truck bed. Live steam is released into these pipes through a connection with the steam plant of the Darling & Company processing plant, Union Stockyards, Chicago, Illinois. This mass is cooked one-half to one hour, depending upon the volume. After cooking, the garbage is hauled out 15 miles, where it is fed to hogs. This cooked garbage is reportedly very palatable, and it is understood that losses from intestinal diseases had dropped considerably since the garbage has been cooked. In addition, they have been able to start feeders at a younger age and less weight on garbage that is cooked than they safely could on raw garbage. (Chicago household garbage is used for ''fill and cover''.)

HOG CHOLERA VIRUS IS HARBORED IN RAW GARBAGE

Raw garbage harbors the virus of cholera, the bacterial causes of several diseases of swine, as well as the parasites of at least one serious disease of swine and man: Trichinosis. Most garbage-feeding ranches are filthy, foul and odorous, providing ideal breeding places for flies, rats and other vermin. Most of them constitute a public health problem.

It is time something is done about it, and on a national scale, not merely an optional state plan. Far too much is at stake to permit the hazardous practice of raw garbage feeding to continue. The present threat to cholera antiserum production in the United States as a result of the vesicular exanthema outbreak, bids fair to develop into a crisis of top importance to the swine industry of the Nation. The *American Veterinary Medical Association Journal* for December, 1952, carries an editorial [3] dealing with a possible nationwide shortage of hog cholera antiserum in 1953 which should alarm every faction of the swine, livestock and packing industries, as well as the veterinary profession and the allied biological industry. The *Journal* rightly asks whether it would not be logical now to challenge hog cholera itself. Indeed it would! This great Nation has for too many years compromised with the scourge of hog cholera, and it is doubtful if we will soon again be presented with so favorable an opportunity to wipe out this costly disease. One of the national agricultural papers, in discussing the possibility of ridding this Country of cholera, boldly stated that vesicular exanthema may be a blessing in disguise in affording the incentive to undertake eradication not only of vesicular exanthema but hog cholera as well. Canada succeeded in eliminating this disease and maintains its success. The eradication of cholera on Newfoundland [4] when that province joined the Canadian Confederation a few years ago, presents a sobering example of what can be done when determined men set themselves, their resources of knowledge and their wills, to a task of disease eradication, even though the disease be established and the odds forbidding.

A comparison between ''eradication'' and ''control'' of hog cholera has been made by Dr. S. H. McNutt, University of Wisconsin (*Veterinary Medicine*, 46:411, Oct., 1951). He states that in 1946 the continued ''eradication'' of hog cholera in Canada cost six hundred dollars ($600), while mere ''control'' in the United States annually costs upwards of forty million dollars ($40,000,000). The situation with regard to cholera is especially unfortunate because this is a disease that need not exist in the United States. It exists only because of inertia and laxity. . . . If vesicular exanthema bestirs us from our inertia, our laxity and stimulates us towards the need and determination to stop the feeding of raw garbage to swine, it will indeed have been a blessing in disguise.

Eradication or hog cholera from the swine herds of the United States is certain to be undertaken in the not too distant future. In the Bureau of Animal Industry we have the largest, and we think the best, animal disease control organization in the world; we have intelligent individual state livestock sanitary officials alert to most emergencies likely to endanger the health of livestock in their states and certainly we have the most enlightened farmers and livestock producers in the world. Why, then, tolerate hog cholera or vesicular exanthema, or any other disease that can be eradicated? We have the opportunity, we have the means, and we have the knowledge. Why not put them to work and clean up these two diseases?

The answer to the question of how much longer the swine industry of the Nation will continue to live with eradicable diseases lies with the industry itself. Veterinarians and regulatory agencies know what should be done and it is entirely proper that they urge legislation, when necessary, designed to control or eradicate a given disease. However, legislation must originate with the industry and the fight for it must be waged by the industry. Until it is realized that industry, rather than a state or federal agency, is the source of and the power behind disease control laws, just so long will that industry be plagued with disease. (See Appendix No. 4.)

If cholera and vesicular exanthema are to be eradicated, it is fundamental that raw garbage be discontinued as a feed for swine. To effect this result will require the combined effort of everyone connected with the swine and livestock industry, the packing industry, veterinary and allied professions—all striving to build a protesting public opinion so determined and forceful as to finally put down these animal plagues and so clean our house that we no longer will be forced to live with them.

THIS IS NOT THE FIRST ATTACK ON RAW GARBAGE

The 1952 vesicular exanthema emergency is *not the first time* that experienced scientists and disease control experts have pointed to the danger of raw garbage feeding as the harbinger of costly animal (or human) diseases. Other such accusations recently leveled were contained in the ''Recommendations of the United States Livestock Sanitary Association'' made at the 55th annual meeting, November, 1951, included the following:

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[3] See "Vesicular Exanthema Threatens a Cholera Serum Crisis," Appendix No. 3, this report. Supplementing this editorial was the warning issued by Dr. W. A. Aitken, editor of the *Journal*, March, 1953, when speaking of hog cholera serum shortage stated that "it is 'touch and go' whether we're going to get through the summer season without an epidemic that could decimate our hog population."

[4] See Exhibit No. 9 for full discussion of the Newfoundland experience.

> "No garbage not sterilized by heating, except that originating on the premises where it is fed, shall be fed to swine. Owners of swine should be advised to avoid feeding uncooked home garbage because of the danger of spreading hog cholera."

Also in the "Recommendations" contained in the "Special Report on Foot-and-Mouth Disease and Other Diseases of Animals in Europe" as submitted by California State Senate Interim Committee on Livestock Diseases on January 23, 1951:

> "It is safe to assume that California would not have had the two breaks of foot-and-mouth which occurred here in (1924-1929) if raw garbage had not been fed, as both outbreaks made their first appearance in garbage fed swine. It is recognized that other diseases are spread through the feeding of raw garbage as in England and other countries: for instance, when hog cholera became prevalent through meat scraps from army camps feeding American grown pork.
>
> "We suggest, therefore, that an immediate study be made as to practicable methods of rendering garbage safe for livestock feeding, and that the feeding of raw garbage be discontinued at as early a date as possible in order to protect California Agriculture."

Public Health officials have long been outspoken in their protest against the feeding of raw garbage to swine due to their findings that trichinosis in humans is widely spread by this practice. The report entitled "Public Health Problems Concerned in the Disposal of Garbage by Feeding it to Swine" delivered by Dr. Willard H. Wright[5] to the American Public Health Association's annual meeting in 1942 states the following:

> "Unfortunately the practice of feeding uncooked garbage to swine helps to perpetuate one of the most important parasitic diseases of man in the United States. This disease, trichinosis, is more prevalent in this Country than anywhere else in the world, and its occurrence is associated to a considerable extent with the above-mentioned practice."

Dr. Wright goes on to say:

> "Diseases other than trichinosis are transmitted through garbage, and the frequent occurrence of these diseases contributes to the financial hazards involved in the feeding of raw garbage to hogs. Among these diseases are *hog cholera, swine erysipelas, foot-and-mouth disease, tuberculosis, vesicular stomatitis,* and *vesicular exanthema. Hog cholera* is a *particular scourge of garbage fed swine* and *many outbreaks are due to the transmission of the virus in scraps of pork in the garbage*. In fact, Canada requires the cooking of garbage before its consumption by swine as a means of controlling this disease. Vesicular exanthema first appeared in garbage fed hogs in California in 1932; since that time it has occurred intermittently, each time in increasing scope, until it has become a formidable problem because of extensive monetary losses resulting from the high mortality in young pigs."

Reference is also made to earlier reports[6] on this subject by the National Institute of Health and which are summarized in Part VI of this report by the joint legislative committee.

POSSIBLE COST OF A CALIFORNIA PROGRAM

The Department of Agriculture prepared an estimate of the budgetary requirements for the first year of operation in the event that mandatory cooking of garbage became law. The total support budget was estimated at $48,613, and a sum of $625,000 was estimated as the amount required as a reserve to match federal funds for indemnification in an eradication program (to be used only if necessary). The Joint Committee on Agriculture and Livestock Problems requested the Legislative Auditor to examine the estimate and report thereon. Exhibit No. 38 contains the auditor's report.

Two measures have been introduced in the 1953 General Session of the California Legislature prescribing courses of action for controlling vesicular exanthema in this State: One measure, S.B. 892, requires garbage be cooked, effective July 1, 1955; the other, S.B. 1697, requires licensing and regulation of garbage feeders. These measures, as introduced, are contained herein as Exhibits No. 39 and No. 40. A third measure, Senate Joint Resolution No. 10, calling upon the federal officials for action, was also introduced and is Exhibit No. 41.

DEPARTMENT OF AGRICULTURE SUBMITS SUPPORTING DATA

At a public hearing on December 9, 1952, by the Joint Committee on Agriculture and Livestock Problems in Los Angeles, the California State Department of Agriculture used a number of exhibits in its presentation of the case against continued feeding of raw garbage. In order that the reader may have the benefit of the information contained therein, and subsequent data made available at the request of the committee, they are made a part of this report and appear immediately hereafter.

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[5] Chief Division of Zoology, National Institute of Health, U. S. Public Health Service, Bethesda, Maryland. See Appendix No. 5 for full text of report.

[6] "Studies on Trichinosis," Maurice C. Hall, Public Health Reports, 1937-1938.

EXHIBITS IN SUPPORT OF COOKING OF GARBAGE

LISTING OF EXHIBITS

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Exhibit No. 1

OUTSTANDING SCIENTISTS REPORT THEIR FINDINGS ON GARBAGE FEEDING

ADMINISTRATIVE CONSIDERATIONS OF GARBAGE FEEDING WITH REFERENCE TO VESICULAR EXANTHEMA AND TRICHINOSIS

R. E. Shope, M.D., D.V.M.,* Oscar Sussman, D.V.M., M.P.H.,† and R. A. Hendershott, D.V.M.‡

ERADICATION OF V.E. DEPENDS UPON ELIMINATION OF RAW GARBAGE FEEDING

It is the hypothesis of this paper that the prevention, control and eradication of trichinosis, vesicular exanthema and foot-and-mouth disease depend upon the elimination of raw garbage feeding of livestock in the United States. To do this will require complete integrity of purpose on the part of the authorities concerned. Unfortunately, there is at present among many officials a very apparent lack of interest and desire to find ways and means of eliminating the dangerous disease-spreading practices that are an inherent part of raw swill feeding operations. It appears that they fail to realize that the one-half of 1 percent of garbage-fed livestock imperil the entire agricultural economy of the Country. The garbage-hog raiser himself cannot be depended upon to take the initiative because, despite storms of disease, he has had a lucrative business and, therefore, is not greatly concerned with his disease-spreading potentialities. However, from the standpoint of biological warfare, civil defense authorities are greatly concerned by the confusion that the recent outbreak of vesicular exanthema is causing because of its marked clinical similarity to foot-and-mouth disease of swine and the extensive diagnostic proceedures necessary to differentiate the two on the occasion of each new outbreak. This alarming situation is actually of more vital importance to cattlemen than it is to the swine raiser, because, should foot-and-mouth disease in its early stages be masked by simultaneous infection in hogs by vesicular exanthema, our cattle industry would be in great jeopardy.

The practice of feeding garbage to hogs has developed through the years in areas adjacent to large cities. The reason for this is quite obvious; the hotels, restaurant chains, hospitals and other institutions provide an easily accessible cheap feed. The practice is by no means limited, but is actually a large interstate problem. In New Jersey, for example, garbage feeding occurs almost exclusively in two areas—one in the southern part and one in the northern part of the state. The major part of the garbage fed in New Jersey crosses either the New York state line or the Pennsylvania state line.

GARBAGE FEEDING SPREADS TRICHINOSIS

The United States Bureau of Animal Industry and the United State Public Health Service have, in their studies, shown that raw garbage feeding of hogs results in a high percentage of trichinosis-infested carcasses. The cyst of *Trichinella spiralis* causes the disease trichinosis in humans when infected pork is eaten raw or in a semicooked state. It is interesting to note that in the many surveys throughout the United States on the diaphragms of human cadavers the percentage of times trichinae have been found were much higher than one would expect. Queen reported in one particular study an infection rate of 27.6 percent, and the general rate has been found to be over 16 percent.[1 2 3] The feeding of raw garbage is also a prime source of the virus of vesicular exanthema. Furthermore, it has been clearly established that the last two outbreaks of foot-and-mouth disease in this Country originated in hogs fed raw garbage on California ranches.[4]

It is of interest to note in passing that Syverton et al. have shown that trichinae larvae can serve as the intermediate and transmitting host for lymphocytic choriomeningitis virus, transferring this virus from guinea pig to guinea pig with lethal results.[5] This proven case of disease transmission stimulates the imagination to think of other possibilities, as yet unknown, in which this situation could prevail. It seems to us not to be beyond the realm of possibility that the importance of raw garbage in the epizootiology of trichinosis, vesicular exanthema, foot-and-mouth disease and, to some extent, hog cholera may be more than merely coincidental and that the problem may present a common factor that has not been as yet adequately recognized. One of us[6] showed a number of years ago that a nematode of swine, the swine lung worm, can and does serve as an intermediate host for swine influenza virus. The work of Syverton et al. has shown that another nematode of swine, trichinella spiralis, can serve as an intermediate for another virus. These two demonstrations of the virus-carrying potentialities of swine nematodes should alert us to the possibility that the trichinosis aspect of garbage feeding may bear a direct relationship and not merely a coincidental one, in the epizootiology of certain virus diseases of swine having a notable relationship to garbage feeding.

PUBLIC INTEREST DEMANDS THAT INTERSTATE SHIPMENT OF GARBAGE BE STOPPED

In view of the facts outlined previously, it is known that trucks picking up raw garbage in New York and Pennsylvania for use on the hog farms in the adjoining State of New Jersey are engaged in the interstate movement of a feed dangerous not only to hogs, but to humans and other livestock. There is a basis, therefore, for the federal control of the interstate movement of raw garbage if for no other reason than to limit the amount of trichinosis in the Country. A perfect example of the dangers inherent in the interstate movement of raw garbage is no more clearly shown than in our present outbreak of vesicular exanthema. This outbreak was definitely started by the interstate movement of raw garbage fed pork from California to Wyoming. This pork, incidentally, was undoubtedly United States inspected and passed. Supplies for the Transcontinental Union Pacific trains were purchased in California; the garbage produced was disposed of on a hog farm in Wyoming. The vesicular exanthema virus which left California in pork has already been the cause of disease outbreaks in twenty-six (26) states. **The costs involved in the feeding of raw garbage bring to mind the last two outbreaks of foot-and-mouth disease in the United States in 1924 and 1929 which were caused by the feeding of raw garbage.** It is indeed a high price for the taxpayer to be expected to pay the costs of indemnity, costs of control and inspection procedures, and, in addition, to have to live with and be subjected to diseases that can be eliminated: A high price indeed simply to make raw garbage feeding a profitable business for the few. We maintain that public interest demands concerted action to eliminate the interstate movement of raw garbage, raw garbage fed hogs, and the pork derived from raw garbage fed hogs. This will most certainly involve a great deal of planning, but most of all we feel it requires the will to accomplish.

It is suggested that the ineffectual method presently employed by the United States Public Health Service in attempting to control the use of raw garbage on the farm level could well be supplanted by a direct prohibition of interstate garbage movement or by a selective licensing method based on facilities for adequate treatment of garbage prior to use. It is likewise suggested that dumping of garbage across state boundaries, whether or not for pig feeding, is not an innocent practice and may lead to disease spread. The use of garbage for fertilizers has also been suggested. Studies by various groups, including the United States Bureau of Animal Industry, show that foot-and-mouth disease virus has been at times very resistant. Authorities, therefore, should assure themselves of the innocousness of fertilizer made from garbage. Some methods will be found to be safe while others will not.

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‡ Director, Division of Animal Industry, State Department of Agriculture, Trenton, N. J.

One issue that has been raised by several high ranking federal officials should be settled. These men misunderstand the United States Public Health Service regulations and think they prohibit the interstate movement of raw garbage to be fed to hogs. As an example of the need for closer liaison and for a more realistic approach to the true facts of the situation, we quote from a letter written by a top official of the United States Department of Agriculture, "The United States Public Health Service currently has a regulation that prohibits the interstate movement of uncooked garbage for hog feed." This statement is false but is much to be desired if it were true. The regulation in question does no such thing. It is, in our opinion, unenforceable and, in fact, has not been enforced since its promulgation over 10 years ago. To enforce it in the State of New Jersey alone, would require that federal officials inspect and keep under continuous supervision over 300 hog farms. The regulation in effect says, "You may bring raw garbage from New York to New Jersey, but, if after you get it to your farm in New Jersey you decide to feed it to your hogs, then the New York garbage must be cooked even though your New Jersey garbage may be fed raw." It is agreed that all garbage should be cooked, but the loophole in this regulation is so big that even 15-ton garbage trucks can and do drive through it. The authors feel it is outside the province of federal authorities to get down to such detailed inspection controls within a state. We feel that federal officials should act and act effectively at state borders—not at the individual farm level within a state.

STATES SHOULD HAVE UNIFORM GARBAGE TREATMENT REQUIREMENTS

The Federal Government would do well to exercise one of its prime responsibilities and functions, namely, to control by interstate regulations where state controls can not effectively handle a problem. In the case of vesicular exanthema and trichinosis we, at the state level, know that state controls alone are not enough. An example may help:

California hogs fed California garbage in California can enter Wyoming or New Jersey in one of the following methods:

(1) As federally inspected and approved pork.

(2) As hogs moved interstate for slaughter for further feeding. Hogs and pork so moved are still disease-dangerous and, in addition, are unfair competition to the New Jersey hog raiser if his costs of operation are increased by the garbage cooking requirement placed in effect within the state. We have been threatened with injunction to prevent a New Jersey garbage cooking regulation unless interstate competition is equally affected. Our legal advice is to the effect that such enjoinment would probably be upheld. In any event, if raw garbage-fed hogs and pork derived from raw garbage-fed hogs can traverse state lines with impunity, it would nullify garbage controls within each of the several states.

RECOMMENDATIONS

Knowing, therefore, that the experiences in trichinosis and vesicular exanthema have shown that garbage feeding of hogs is the prime method of the spread of the causative agent of both; knowing that present interstate raw garbage controls are ineffective; knowing that the 1924 and 1929 outbreaks of foot-and-mouth disease started at raw garbage feeding enterprises, we therefore recommend that a complete review be made and all concerned be properly appraised of the need for coordinated federal and state action in order to:

1. Prohibit the interstate movement of raw garbage except under certain specified conditions as:

- *a. For sanitary land fill operations or incineration by specific permit only, in order to prevent ordinary dumping wherein vectors may spread disease by mechanical or carrier-state means.*
- *b. For manufacture into fertilizer, but only where the process is shown to be effective in killing the viruses of foot-and-mouth, vesicular exanthema and agents of other diseases and the plant is licensed.*
- *c. For movement to licensed centralized cooking vats where adequate mechanical recording controls may be maintained. The raw garbage shall not be transported to these plants in the same trucks which pick up the cooked material for distribution to the individual hog farm, unless complete sterilization can be obtained of the truck, including attention to the personnel and equipment.*

2. Prohibit the interstate movement of hogs fed raw garbage. Require certificates from official agency of state of origin certifying to the fact that the animals were not fed raw garbage.

3. Prohibit the slaughter in any federal meat inspection establishment of hogs which are not accompanied by a certificate indicating that they have not been fed raw garbage. Except:

- *a. Hogs may be slaughtered in specified plants where all meat will be processed and bones removed and tanked. This should be done only in specified plants.*

4. Prohibit on an intrastate basis essentials of Items 1, 2 and 3 above.

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EXHIBIT NO. 2

RECOMMENDATIONS OF THE AMERICAN FARM BUREAU FEDERATION TO CONTROL AND ERADICATE VESICULAR EXANTHEMA[1]

In accord with the resolutions on livestock disease adopted by the 34th annual meeting of the American Farm Bureau Federation in Seattle, Washington, December 11, 1952, the A. F. B. F. finds that recent experience with widespread outbreaks of livestock and poultry diseases, such as vesicular exanthema (V.E.) in hogs and the lack of effective control measures indicates a need for improvement in state and federal disease control programs * * *. A large majority of states plan legislative action in the very near future, especially on treating garbage.

The control and eradication of livestock diseases is both a national and state problem, since the failure of one state to take effective control measures can jeopardize the good work of another. * * *

The purpose of this is to provide information for use of the several State Farm Bureaus in developing legislation to more effectively deal with major livestock and poultry diseases with special emphasis on the control and eradication of vesicular exanthema in hogs.

Attempts to eradicate V.E. have not produced results. The eradication program has consisted of (1) definite diagnosis of V.E., (2) quarantine of the herd and area, (3) slaughter and heat processing of the recovered hogs, and (4) federal-state indemnities to owners to compensate for the monetary loss incurred by the special slaughtering process.

In spite of this "emergency" program, the disease has continued to break out every few weeks in new areas and states. Some states are making no serious attempt to eradicate V.E. and areas in 9 or 10 states are still under quarantine. Well over $2,000,000 have been expended for indemnities. The loss to producers in lower prices because of embargoes against pork by several states and unfavorable publicity runs into several millions of dollars.

What is needed, therefore, is to require that all garbage containing animal carcasses or parts thereof fed to swine be treated to destroy disease producing agents.

Canada has required the cooking of all garbage fed to swine since 1916. It has a national law requiring a garbage feeder to apply for a license. If an inspection of the cooking facilities and premises reveals that satisfactory provisions have been made to feed hogs garbage, a license is granted the feeder. Periodic unannounced inspections are made thereafter to insure proper adherence to the statutory requirements.

There is no reason why this would not be feasible and practical in the United States. Legislation could be enacted by each state plugging this breach in our disease control defenses supplemented by federal legislation to prevent the movement in interstate commerce of raw garbage containing animal carcasses or parts thereof and interstate movement of hogs or products therefrom when such hogs have been fed garbage. This would tend to confine the disease within the state of infection.

One of the principal reasons for the eradication program not progressing is the failure to require cooking of infected garbage fed to swine in all but three or four states.

THE A.F.B.F. CITIES RESOLUTIONS ADOPTED BY OTHER INTERESTED GROUPS

1. ACTION TAKEN AT RECENT ANNUAL MEETING OF NATIONAL GRANGE

"We urge both state and national governments to develop more effective quarantine measures against shipment and marketing of diseased animals.

"We urge promotion of feasible methods of preventing the spread of disease so long as any such measures do not unjustifiably suppress a sound livestock industry.

"We especially urge federal and state authorities to use every authorized means, *including sterilization of garbage* to suppress the spread of V.E. now threatening all parts of the country."

2. ACTION OF AMERICAN VETERINARY MEDICAL ASSOCIATION

"The executive board of the American Veterinary Medical Association meeting on December 4, 1952, voted unanimously to support efforts to *prohibit the feeding of garbage to swine, unless it had been treated* in some way *to kill the disease-producing agents* which it might contain."

The A. F. B. F. Offers Suggested Legislation

(Title. It should conform to state requirements. The following is a suggestion; a more complete title should be used where necessary. The act should be broad enough to deal effectively with any major livestock diseases of an epidemic nature.)

An act to eradicate and control the spread of infectious livestock diseases caused or spread by the feeding of infected raw or unprocessed garbage to livestock and for other purposes.

SECTION 1. Definitions. For the purposes of this act, the following words shall have the meanings ascribed to them in this section:

(a) "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of foods containing animal carcasses or parts thereof.

(b) "Person" means the State, any municipality, political subdivision, institution, public or private corporation, individual, partnership, or other entity.

(c) "Agency" means State Veterinarian, Public Health Officer, Sanitary Inspector or other person, division or department designated by the State Government to administer this act.

SEC. 2. Permit for Feeding Garbage to Swine. (a) No person shall feed garbage containing animal carcasses or parts thereof to swine without first securing a permit therefor from the agency. Such permits shall be secured ________ days after the effective date of this act and shall be renewed on the ________ day of the ________ month of each year.

(b) This act shall not apply to any person who feeds garbage from only his own domestic household to swine on his own premises.

SEC. 3. Application for Permit. (a) Any person desiring to obtain a permit to feed garbage containing animal carcasses or parts thereof to swine shall make written application therefor to the agency in accordance with Section 2(a) above on a special form provided for this purpose by the agency. (See suggested form attached.)

(b) At the time of filing such application the applicant shall pay to the (agency which the State may designate) a permit fee in the sum of $________. All such fees shall be remitted to the State Treasurer who shall place all moneys received to the credit of the (agency which the State may designate) account for the purpose of carrying out the provisions of this act.

SEC. 4. Revocation of Permits. Upon determination that any person having a permit issued under this act, or who has applied for a permit hereunder, has violated or failed to comply with any of the provisions of this act, or any of the rules or regulations promulgated thereunder, the agency may revoke such permit or refuse to issue a permit to an applicant therefor.

SEC. 5. Cooking or Other Treatment. All garbage containing animal carcasses or parts thereof regardless of previous processing, shall, before being fed to swine, be thoroughly heated to at least 212 degrees F. for at least 30 minutes, unless treated in some other manner which shall be approved in writing by the agency as being equally effective for the protection of public health and livestock.

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[1] Developed by a special committee of the A. F. B. F. and approved by the Board of Directors, February 6, 1953, Washington, D. C.

Sec. 6. Inspection and Investigation: Maintenance of Records. (a) Any authorized representative of the agency shall have the power to enter at reasonable times upon any private or public property for the purpose of inspecting and investigating conditions relating to the feeding of garbage to livestock as required by this act.

(b) Any authorized representative of the agency may examine any records or memoranda pertaining to the feeding of garbage to swine. The agency may require maintenance of records relating to the operation of equipment for and procedure of treating garbage to be fed to swine. Copies of such records shall be submitted to the agency on request.

Sec. 7. Quarantine. (a) Swine fed garbage containing animal carcasses or parts thereof shall be quarantined to the premises where fed and shall move from the premises only under permit issued by an authorized representative of the agency.

(b) Swine which at any time have been fed garbage which does not conform to the provisions of Section 5 shall be disposed of in a manner which will prevent the possible spread of swine disease.

Sec. 8. Enforcement of Act: Rules and Regulations. The agency is hereby charged with administration and enforcement of the provisions of this act, and is authorized to make and enforce all rules and regulations which the agency may deem necessary to carry out the purposes of the act.

Sec. 9. Penalties. Any person who shall violate any of the provisions of, or who fails to perform any duty imposed by, this act, or who violates any rule or regulation promulgated thereunder shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than $-------- nor more than $--------, or by imprisonment for a term of not more than one year, or by both such fine and imprisonment. In addition thereto, such person may be enjoined from continuing such violation. Each day upon which such violation occurs shall constitute a separate violation.

Provision should also be made to require proper treatment of any stockyards feed materials recovered from pens, etc., when used as hog feed, since such material can be a serious source of disease. This probably can be handled by issuance of rules and regulations under present sanitary laws.

FEDERAL LAWS

Federal laws dealing with livestock diseases are apparently not clear, and there is reason to believe that the Bureau of Animal Industry is reluctant to recommend use of the full powers of the Secretary of Agriculture in the administration of these laws.

Following are excerpts from the federal law on the prevention of animal diseases:

Sec. 53.1. * * * (f) Disease. Foot-and-mouth disease, rinderpest, contagious pleuropneumonia, or any other contagious, infectious, or communicable disease of animals (including poultry), which in the opinion of the secretary constitutes an emergency and threatens the livestock industry of the country.

Sec. 53.2. Determination of Existence of Disease; Agreements with states. (a) Upon declaration by the Secretary of Agriculture of the existence of any disease which in his opinion threatens the livestock industry of the country, the chief of bureau is hereby authorized to invite the proper state authorities to cooperate with the department in the control and eradication of such disease.

(b) Upon agreement of the authorities of a state to enforce quarantine restrictions and orders and directives properly issued in the control and eradication of such a disease, and to pay 50 percent of the expenses of (1) purchase, destruction, and disposition of animals and materials affected by or exposed to the disease, and (2) disinfection of infected premises within the state, the chief of bureau is hereby authorized to agree, on the part of the department, to cooperate with the state in the control and eradication of the disease and to pay not more than 50 percent of such expenses: Provided, That *the secretary may authorize other arrangements for the payment of such expenses upon finding that an extraordinary emergency exists.*

Sec. 53.5. Disinfection or Destruction of Materials. (a) *In order to prevent the spread of disease, materials contaminated by or exposed to disease shall be disinfected*: Provided, however, That in all cases in which the cost of disinfection would exceed the value of the materials or disinfection would be impracticable for any reason, the materials shall be destroyed.

(b) The disinfection or destruction of materials under this section shall be under the supervision of a bureau employee who shall prepare and transmit to the chief of bureau a certificate identifying all materials which are destroyed, showing the disposition thereof.

Comment—It will be noted from the above that V.E. falls in the category of a contagious, infectious and communicable disease. It is for this reason that the secretary announced the existence of an emergency, however, unless the states are prepared to cooperate with the Federal Government as provided in Section 53.2, it appears that the secretary is not required nor does he have authority to go into the state and eradicate the disease. It is only when the situation is such as to fall in the category of an *extraordinary emergency* that the secretary *may* authorize other arrangements for the payment of expenses and indemnities, etc.

It was because of this problem and the fact that many states were unable to cooperate under the present program that the A. F. B. F. and several other interested groups recommended the declaration of an extraordinary emergency. The secretary has been reluctant to make such a declaration, probably because of the inability to prevent reinfection through the feeding of untreated, infected garbage, etc.

Authority under Section 53.5 for disinfection and destruction of materials such as raw garbage is probably not sufficiently clear to make it possible to require treatment or destruction of disinfected raw garbage.

There are many groups in the swine industry that are of the opinion that nationally the feeding of garbage to hogs is of minor economic importance, that it is a blight on the entire industry and that consideration might well be given to the advisability of a declaration by the Federal Government that the feeding of infected raw garbage is not in the interest of the public welfare and should be prohibited until such time as the disease of V.E., and possibly trichinosis and hog cholera is no longer a problem. There is some feeling, too, that producers as well as feeders of infected raw garbage should be equally responsible from the public health standpoint.

Following are additional suggestions for federal legislation and programs:

1. Authority of the Secretary of Agriculture under present laws should be clarified.
2. Provision should be made, if not presently authorized by law, to give the Secretary of Agriculture

power to prevent the interstate movement of untreated garbage and possibly other infected feed materials. Provision should also be made to prevent the interstate movement of animals fed untreated garbage containing animal carcasses or parts thereof, or other infected feed materials. Moreover, the movement of the products of such animals should be closely regulated.

3. Provision should be made for a stepped-up program of research to determine:

A. The cause of V.E. and how it is transmitted.

B. The relative dangers of feeding of raw garbage as compared to cooked or sterilized garbage and the extent to which the disease, as well as trichinosis, is harbored and transmitted in garbage.

C. What laws or regulations are needed to control the interstate movement of raw garbage.

D. What relationship, if any, there might be in the increased use of antibiotics, etc., in livestock feeds to the increase in the incidence of this disease.

4. Adequate funds should be provided for payment of indemnities promptly to match state funds.

EXHIBIT NO. 3

ACTION BY CALIFORNIA STATE GRANGE ON V.E. AND COOKING GARBAGE, REQUIRING GARBAGE FEEDING PLANTS TO COOK GARBAGE BEFORE FEEDING HOGS

WHEREAS, Many diseases of hogs are spread by scraps of raw meat fed in garbage, particularly in the diseases of hog cholera and vesicular exanthema (commonly designated V.E.) in hogs and a disease similar to the hoof and mouth disease, and

WHEREAS, California and some other western states are now quarantined because of the vesicular exanthema and we feel that steps should be taken to control this destructive disease before more damage is done; therefore, be it

Resolved, The California State Grange favor legislation requiring the *Garbage Feeding Plants* to *Cook Said Garbage* or use other effective means of destroying virus carried in said garbage before feeding it to the hogs. (Adopted October 23, 1952)

EXHIBIT NO. 4

UNITED STATES LIVESTOCK SANITARY OFFICIALS ACTION REGARDING THE FEEDING OF RAW GARBAGE[1]

RESOLUTION RE VESICULAR EXANTHEMA AND GARBAGE

WHEREAS, The disease known as vesicular exanthema of swine, which has existed in the State of California since 1932, has recently escaped from the confines of that State to at least 27 other states; and

WHEREAS, The spread of the disease into the swine herds of many of the states is a threat to the swine industry of the Nation; and

WHEREAS, Two vigorous attempts at eradication by full employment of the slaughter method in California were apparently unsuccessful; and

WHEREAS, Subsequent outbreaks of the disease in California were dealt with by rigid quarantines and restrictive shipping regulations, which also apparently failed of success; and

WHEREAS, It is believed by all veterinary authorities informed on the subject that raw garbage is the source of primary outbreaks of vesicular exanthema of swine and it is known to carry foot-and-mouth disease, hog cholera, trichinosis and other viral, bacterial and parasitic disease; and

WHEREAS, It is apparent from the California experience with the disease that the slaughter method alone, unimplemented by vigorous and positive attack on the source of the disease will fail; and

WHEREAS, It appears evident that if the constituted authorities expect to prevent the disease from becoming established in the United States and if the swine raisers of the nation desire to maintain their droves free from the ravages of vesicular exanthema, and the hazard of foot-and-mouth and other viral, bacterial and parasitic diseases; therefore, be it

Resolved, That the United States Livestock Sanitary Association go on record as condemning the commercial feeding of raw garbage to swine, and as urging all of the states to require by law that all garbage fed to swine be cooked or processed under adequate regulation and supervision as an alternative to its discontinuance as a feed for livestock; and be it further

Resolved, by the United States Livestock Sanitary Association, That it is recommended to the Secretary of Agriculture and the Bureau of Animal Industry that consideration be given to the promulgation of regulations designed to prevent the interstate movement of raw garbage intended as a feed for livestock unless the same is sterilized in a manner prescribed by the U. S. Bureau of Animal Industry or the U. S. Public Health Service and authorization is first received in writing from the state in which said garbage is to be fed authorizing importation and processing; and be it further

Resolved, That the Bureau of Animal Industry or the Livestock Sanitary Officials of the several states promulgate regulations designed to prohibit, without qualification or exception, the feeding of waste food products of any kind or nature, from any train, plane, vessel or other conveyance moving interstate or intrastate, to livestock or poultry.

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[1] Adopted by U. S. Livestock Sanitary Association, October 27-29, 1952, Louisville, Ky.

EXHIBIT NO. 5

1953 PROGRAM AND POLICIES OF THE CALIFORNIA WOOL GROWERS ASSOCIATION

(October 31, 1952)

STERILIZING GARBAGE

The feeding of raw garbage in California resulted in the 1924 outbreak of foot-and-mouth disease at Vallejo; also it was raw garbage which caused the next outbreak of the same disease which occurred in the Los Angeles area.

Hogs fed raw garbage resulted in outbreaks of vesicular exanthema at San Francisco, San Diego and more lately in some 24 states of the United States, and in every case such outbreaks have been noted only where hogs are fed raw garbage.

In Great Britain, garbage must be sterilized before feeding to hogs. This is a standard procedure in preventing outbreaks of foot-and-mouth disease in that country.

We oppose the feeding of raw garbage to hogs in California and ask that legislation be enacted to stop this practice immediately.

EXHIBIT NO. 6

PUBLIC HEALTH OFFICIALS ACTION REGARDING THE FEEDING OF RAW GARBAGE, 1952

RESOLUTION [1]

Disinfection of Garbage to Be Utilized for Swine Feed

WHEREAS, Public health has for a considerable number of years recommended measures for the control of diseases of swine transmissible to man notably trichinosis; and

WHEREAS, One of the principal methods by which this can be accomplished is prevention of the feeding of raw garbage to swine; and

WHEREAS, Public health considers the sanitary land fill disposal of garbage as the most certain method of control of the spread of disease by this avenue; and

WHEREAS, Where this is impractical, disinfection of raw garbage before feeding may serve to prevent the transmission of disease in swine; and

WHEREAS, Now to the long standing problem of swine disease transmissible to man, there is added the growing concern of agricultural interests in swin diseases not transmissible to man, particularly vesicular exanthema; now, therefore, be it

Resolved, That this association urges state and territorial health departments to cooperate fully with the appropriate agencies in the several states to activate or intensify programs for the control of swine diseases transmitted by raw garbage feeding including promotion of legislation or regulations governing such practices; and be it further

Resolved, That this association request the Public Health Service to continue research on control measures and to provide technical consultation to state health departments in furthering their role in this program.

SUPPORTING STATEMENT

Past research by the Public Health Service and the U. S. Department of Agriculture clearly indicates that feeding of untreated garbage to swine is primarily responsible for trichinosis in swine. It is reported that the consumption of such infected pork, insufficiently cooked, has resulted in approximately 16 percent of the population being infected with this parasite. Very recently an epidemic of vesicular exanthema (a virus disease of swine) caused heavy hog losses in many of the 24 states affected. The initial vector for this disease was reportedly untreated garbage that had been fed to hogs. There are many diseases of swine, some of which are transmissible to man, that can be effectively controlled if garbage that is fed to swine is properly disinfected. As a result of this epidemic the Surgeon General has been requested by the Secretary of the Department of Agriculture to re-emphasize the enforcement of the Interstate Quarantine Regulation concerning the interstate shipment of garbage. The Department of Agriculture also suggested that the Public Health Service bring to the attention of all states the importance of enforcing laws or regulations on the disinfection of garbage; or their adoption and enforcement where such laws or regulations are not already in existence.

State legislation adopted and already under consideration in many states has created a demand for technical assistance on problems of disinfection equipment and procedures as well as for alternate garbage disposal methods. For the Public Health Service to effectively provide such needed assistance additional appropriations are a necessity.

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[1] On October 14, 1952, the executive committee of the Association of State and Territorial Health Officers adopted the above resolution.

EXHIBIT NO. 7

ADDITIONAL FACTORS ARE SERVING TO DISCOURAGE FEEDING OF RAW GARBAGE

In a report to the Joint Legislative Committee by the California State Department of Agriculture, dated August 7, 1952, there was included the following comment:

FUTURE OF GARBAGE FEEDING

Aside from what might be done officially about the feeding of raw garbage to swine, what are the natural prospects for its continuation?

In the first place, industrial expansion and the encroachment of new residential areas over much of the country where hog ranches are located has forced many of them to move or go out of business and will do the same with many more. In many counties, zoning ordinances prohibit the establishment of new hog ranches and the garbage feeder finds himself forced out of his old location with no place to go. Unrestricted locations where new feeding premises could be built are often so far from the source of supply as to make the hauling costs prohibitive. This, combined with the high prices being paid for garbage due to competitive bidding for it, is likely to put nearly as many feeders out of business as will legal action requiring the cooking of their feed.

In the light of these remarks it is interesting to note the following newspaper report covering the hog-raising industry in San Mateo County. The reader should re-examine Map 1 between pages 16 and 17, wherein he will observe that San Mateo County has had by far the largest number of reported outbreaks of vesicular exanthema of any of the counties in California.

San Mateo Times, January 22, 1953

PLANNERS HEAR MASS PROTEST OVER HOGS; RANCHER PLEA HELD UP

Redwood City, Jan. 22—The future of the hog-raising industry in San Mateo County today depended on whether the hog ranchers can propose a workable plan as to location of hog farms, and their operation.

This, in effect, was the picture following a long and hectic hearing before the county planning commission yesterday afternoon. The planners, in no uncertain terms, put it squarely up to the ranchers.

More than 120 persons, mainly residents of the San Gregorio-La Honda area, were present to protest the application of Thomas J. Callan, Jr., of Colma, for permission to establish a 655-acre hog ranch near San Gregorio.

Consensus of those present was: "We don't want hog ranches in San Mateo County—period."

After hearing protests from a score of persons and accepting protest petitions bearing 476 signatures, the commission voted to continue consideration of the application to give Callan's group and other hog ranchers an opportunity to present a plan for future location and operation of hog farms. The continuation has a 90-day time limit.

Plan "Better Presentation"

The continuance was suggested by Commissioner Danny Dees after Antonio J. Gaudio, representing Callan, had asked for more time to prepare a "better presentation" of the application.

Leslie Nichols, commission chairman, noted that two years ago the commission met with hog ranchers to discuss the encroachment of residential development on the hog ranch near Colma.

"At that time," he said, "we asked the hog ranches to make a study and recommendation about future location of hog ranches. No recommendation was made. The ranchers said they would wait until they were forced out of Colma before they would decide."

After the commission had approved Gaudio's request for a continuance, Nichols said:

"I think I am speaking for the commission when I say we are giving the hog ranchers one more chance to come up with a workable plan. If they don't come up with one, all applicants for hog ranches will get a uniform answer from this commission: 'Nothing doing, gentlemen.' "

When Nichols indicated at the start of the hearing that protests would be heard despite Gaudio's request for a continuance, Gaudio asked to withdraw Callan's application, to be resubmitted after additional study.

Withdrawal Denied

Nichols ruled that the application could not be withdrawn.

Protest petitions were then presented and the commission heard protests from the floor.

Manuel Souza, who owns property adjacent to the proposed hog ranch on La Honda Road, west of San Gregorio, said that garbage-fed hogs, as the Callan group proposes to keep, are causes of many types of diseases. He cited instances where large sums of money were required to stamp out diseases caused by garbage-fed hog farms.

"This type of hog farm may be profitable to the owner," he said, "but not to the taxpayer who foots the bill for fighting diseases."

Hall C. Ross, representing the Ross Estate Company, owner of 1160 acres adjacent to the proposed ranch, said the presence of a hog ranch in the area would decrease property values. "There's no doubt," he said, "that the ranch would smell like anything." He asked the commission to take definite action on the application, rather than allow its withdrawal.

Near County Beach

James Humphrey, representing the 5,000-acre Cascade ranch in the extreme south end of the county, pointed out that there is a county beach and park at the mouth of San Gregorio Creek.

"If this enterprise is allowed," he protested, "the beach and park will become nothing more or less than an open sewer. The land in the area is clay and adobe and doesn't allow much percolation of rain water. Stuff from the hog ranch would run off with the rain water and find its way to San Gregorio Creek."

"Would Retard Development"

He also claimed that the presence of hog ranches in the Colma area has held up the development of that area and that, if hog ranches were allowed on the coastside, they would hold up development there, also.

George E. Dunn said hog ranches create "an awful stench in Colma and cause rats by the hundreds and flies by the millions. The San Gregorio Valley is the prettiest spot in the county. It has a future, but that future is gone if hogs are allowed."

Fire Menace Cited

Bert L. Werder, county fire warden, said his department has had trouble in the past in fighting fires near the hog ranches. "We have had to fight the stench and the muck as well as the fire," he said.

He pointed out that much of the coastside area depends on shallow wells for household water and said he fears the proposed hog ranch might pollute surface water.

Boys' Town Plans Fold

Clark Oxley, representing Optimist Clubs of San Mateo and San Francisco Counties, said his group has purchased 94 acres in San Gregorio Canyon to establish a "Boys' Town of the West," and objected to the proposed hog ranch, claiming it would cause "pollution."

David Arata, a partner with Callan in the Consolidated Hog Company which would operate the San Gregorio Ranch, was the only person besides Gaudio who spoke in favor of the application.

Claims Safety Measures

Arata said measures are taken by his group to hold down diseases, by vaccination, spraying for flies and poisoning rats. He said his company keeps 15,000 hogs in a small area in Colma, but plans to keep only 2,000 hogs on the San Gregorio Ranch.

"At the present time, we are in an area where 15,000 people live, and there have been no complaints," he said. This, as were other statements made by him, met with boos and jeers from the protestants.

Many Protestants

Others who spoke against the application included:

Mrs. Avis Kalenborn, representing the board of directors of the San Mateo County unit of Pro-America; Bernard W. Ford, a neighboring rancher; Albert Gommo, who said he represented 574 families of the Cuesta-La Honda Guild; Lee Ross, owner of land adjacent to the proposed site; William Debenedetti; Mrs. Fred G. Laval; Mrs. Paul Modena, representing the San Gregorio school; Mrs. Ethel Johns, Mrs. Edwin Sears and W. C. Palamountain.

State Bill Pending

It was brought out that a bill is pending in the State Legislature which would require all garbage fed to hogs to be cooked. At the request of Dees, Nichols asked for a show of hands on these questions. "Do you object to hogs fed with raw garbage, or do you object to hogs—period?" With the latter question, nearly everyone in the room raised his hand.

The applicant's father, Thomas J. Callan, Sr., who is a member of the planning commission, was not present during the hearing. He has disqualified himself from voting on his son's application.

EXHIBIT NO. 8

STERILIZATION OF GARBAGE FOR FEED IN ENGLAND[1]

NOTES ON ENGLISH PRACTICE OF STERILIZING GARBAGE FOR FEED AS OBSERVED BY PROFESSOR H. B. GOTAAS DURING THE SUMMER OF 1950

At the beginning of World War II the need for maximum utilization and reclamation of the waste food in garbage was very important in England. **The public health problem of foot and mouth disease and trichinosis related to feeding infected raw garbage to hogs was so serious that it was necessary to prohibit this practice.** Since it was important that the Country continue to utilize this source of food supply for animals, sterilization stations (often called concentrator plants) were put into operation in many cities. There kitchen wastes are sterilized or cooked before distribution as hog or poultry feed. Only kitchen wastes, which have been segregated at the residence are thus treated. These stations are located at convenient places within economic hauling distances and are operating without creating nuisances. Some, located in commercial areas, have been in operation for eight or ten years. Many of these sterilization plants are revamped buildings.

A typical plant at Glasgow Terrace, Westminster, London, was studied by a member of the Project staff last summer. The operation of this plant is under the direction of Mr. H. Ardern, Director of Public Cleansing, Westminster City Hall, London. The two-story building has an area of a little over 10,000 square feet. The layout of the plant is so arranged that the raw garbage is isolated from the sterilized final product. The receiving section is located on the ground floor and the trucks discharge their loads into a receiving hopper situated below ground floor level. The material is elevated from this hopper by a 60-inch endless steel-plate conveyor set at an angle of 35 degrees to the horizontal, and geared to operate at speeds of 10 or 15 feet per minute. Angle cleats with 4-inch leg projections are fitted to the conveyor to prevent the material from falling back towards the hopper. Grid bars are placed near the top of the conveyor to insure an even flow of the material. The conveyor and hopper both serve for storage space when the garbage is being delivered to the plant at a rate greater than the capacity of the sterilizers. Equipment for cleansing and sterilizing garbage cans is located in the receiving section.

The garbage is delivered from steel plate conveyor to a 36-inch rubber belt on the second floor. This belt runs at about 100 feet per minute and at right angles to the steel plate conveyor. The material is sorted on this section of belt before it is plowed off into storage positions ready for loading through apertures in the floor, into the sterilizers (also called concentrators) located at ground level. The material can also be unloaded directly from the belt into the sterilizers.

The three sterilizers on the ground floor are steam jacketed cylindrical steel vessels in which batches of garbage are cooked with steam under pressure for about an hour. The steam is supplied by two Cochran multitubular boilers which have a maximum evaporation capacity of 2,160 pounds per hour.

The vapor released when the sterilizers are opened is washed by passing it through three condensing towers fitted with thermostatic devices to control the quantity of water required for the condensing process. The condensate from the condensers goes to a receiving pit and then to an effluent cooling and chlorinating pit, where chlorine is added for odor control before discharge to the sewer. The purpose of the condensate receiving pit is primarily to form a liquid seal to protect the equipment from the corrosive action of chlorine. The noncondensable gases are vented to the atmosphere after chlorination by gas which is not adsorbed by the liquid effluent. Chlorine is also liberally used in washing and cleansing floors and conveyors.

The cooked garbage, a thick fluid when hot, is drawn off into cylindrical metal containers about 18 inches in diameter and 27 inches high. On cooling, the sterilized "foodstuff" colidifies into a somewhat rubber- or "jello"-like mass which will slide out of the containers and onto trucks for transport without breaking apart. Hog and poultry feeders purchase the "foodstuff" and haul it from the plant. This plant processes an average of over 300 tons a week of kitchen wastes.

Over *five million tons* of *cooked "foodstuff"* have been sold in England and the *demand for* the *material* far *exceeds* the *supply.* It is reported that *seven pounds* of *"foodstuff"* will *produce one pound of pork* and that practically no material is left uneaten.[2]

The economic aspects of such an operation in the United States are certainly different from those in England. It cannot be assumed that garbage sterilization would be economical here. The extensive use of home garbage grinders, may further change the practice of salvaging garbage as a feed material. At the present time hog feeding, no doubt, provides a most economical utilization of waste food products. It is possible that in areas where serious public health, sanitation and nuisance problems are associated with raw garbage hog feeding, sterilization might be an economical means of salvaging this food material.

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[1] *News Quarterly*, Vol. II, April, 1951. Sanitary Engineering Research Project, University of California.

[2] It is estimated that 25 pounds of raw garbage will produce one pound of pork. U. C. Circular 166, P4, April, 1950.

EXHIBIT NO. 9

EXPERIENCE WITH RAW GARBAGE FEEDING AND HOG CHOLERA—NEWFOUNDLAND

STATEMENT BY HONORABLE T. CHILDS, VETERINARY DIRECTOR GENERAL, DEPARTMENT OF AGRICULTURE, CANADA

Relative to the experience in Newfoundland with raw garbage feeding and hog cholera prior to confederation with Canada. (Based upon information of an officer of the Canada Department of Agriculture who was an official of the Newfoundland Government before confederation.)

When the Canadian and American forces came to Newfoundland at the beginning of the last war, it was the first time in our history that large amounts of garbage became available, and owners of hogs readily took advantage of this cheap source of hog feed, without taking the added precaution of cooking it before it was fed.

The first outbreak of hog cholera in Newfoundland started in pigs which were fed swill from military camps near St. John's, in the spring of 1941. These camps were using American pork. Practically all piggeries in the vicinity of St. John's lost all their animals. There was no legislation relative to garbage feeding and no compulsory reporting of contagious diseases, with the result that the outbreak got out of control before it was actually discovered by the local veterinarian. This was the first time a disease of this nature was ever known to exist in Newfoundland. Herds of hogs were struck heavily and practically wiped out in a very few days. Losses were so severe, and with no compensation paid, many of the hog owners did not restock for months and even years.

The next and last reported outbreak was in the spring of 1945. At the farm operated by the Hospital for Mental and Nervous Diseases, where 100 pigs were kept, some of the animals became ill and died in a very short time. Dr. Bishop, Veterinarian, Chief Health Inspector, Dept. of Public Health and Welfare, was manager of this farm. Post mortems were done on the dead pigs by Dr. Bishop and myself, and lesions similar to those seen in hog cholera were noted in each animal. The disease spread so rapidly that *the whole herd was wiped out in a few days.*

At the same time other hog owners experienced severe losses, in some cases where the disease had occurred four years previous, and in other instances where the herds had escaped four years ago. Post mortems were done, and typical hog cholera lesions noted in each case. *It should be noted here that in each case uncooked garbage was fed.*

It was reported that some of the hog owners were using anti-serum to protect their hogs against this disease, but there are no records to show as to what extent it was used, as there was no legislation requiring permits before either virus or anti-serum were imported.

Legislation similar to that contained in the Animal Contagious Diseases Act of Canada was drafted, passed the first and second reading, and had just about reached its final stage of being enacted at the time of Confederation."

EXHIBIT NO. 10

ACTION BY WESTERN STATES MEAT PACKERS ASSOCIATION

REPORT OF THE CHAIRMAN OF THE ANIMAL DISEASES COMMITTEE MEETING IN ROOM 2001, PALACE HOTEL

February 11, 1953, 2 p.m.

The Animal Diseases Committee meeting was attended by packers, shippers, the State Veterinarians of California, Oregon, Washington, Idaho, and Nevada, the Director of Agriculture of the State of Oregon, and the Assistant Director of Agriculture for the State of California. The Federal Government was represented by Dr. W. A. McDonald of the Bureau of Animal Industry. The costly vesicular exanthema of swine was fully discussed and the following control and eradication program was developed for adoption by the association:

The association will sponsor legislation in Congress to bring about an effective, coordinated program to eliminate V.E. in hogs. This legislation will include indemnity payments to producers, feeders and packers to compensate them for their losses, and will secure the maximum cooperation between the Federal Government and the states in working as a team to completely eradicate the disease. The association will appear before house and senate committees in support of this legislation and will seek similar support from all segments of the livestock and meat industry.

The association will recommend to the Secretary of Agriculture that he appoint a National Advisory Committee of state sanitary officials and livestock and meat industry representatives to assist in developing the program for eradicating vesicular exanthema.

The association will ask the Department of Agriculture to undertake immediate research to develop an effective vaccine to prevent V.E. in hogs and will support federal appropriations for this purpose. We also recommend that this research be given special priority at the department's Animal Disease Research Institute which is soon to be completed at Plum Island, New York.

The association favors the enactment of state laws in every state requiring the sterilization of all garbage fed to livestock.

The association, as a temporary measure, will give its support to regulations requiring that all garbage-fed hogs must move directly to slaughtering plants, and not through public yards or auction yards.

Until V.E. in hogs is eradicated in the United States, the association recommends compulsory regulations requiring all railroad cars and trucks used to transport hogs to be cleaned and disinfected under government supervision prior to loading and again immediately after unloading. Railroad cars and trucks used in transporting hogs long distances must also be provided with permanent feed and watering racks. Until this order becomes compulsory, the association recommends that packers require the railroads and trucking companies to clean and disinfect their cars and trucks before hogs are loaded.

The association believes the steps we have outlined will stamp out vesicular exanthema in hogs in the shortest possible time and should be the basis of a national program to permanently eradicate this disease.

E. F. FORBES
Chairman

In compliance with this resolution and directive, the W. S. M. P. A. went into action as evidenced in the following report [1] covering meeting of National Advisory Committee for the Eradication of the Swine Disease Vesicular Exanthema (including representative of W. S. M. P. A.) with officials of the U. S. D. A.:

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[1] From Newsletter of the W. S. M. P. A., March 3, 1953. (Vol. VIII, No. 13). See also Appendix No. 2.

"Our Washington representative, L. Blaine Liljenquist, and 14 other members of the National Advisory Committee for the eradication of the Swine Disease Vesicular Exanthema, met February 28th with Undersecretary True D. Morse and livestock health officials of the Department of Agriculture. The committee urged that present eradication procedures conducted cooperatively by state and federal governments be strengthened.

"A number of specific proposals to help eradicate the disease as quickly as possible were submitted. Particular attention was given to the need of preventing the feeding of raw garbage and the importance of using clean vehicles and facilities in transporting swine.

"In order to encourage the cooking of garbage containing meat or animal products before feeding it to hogs, the committee asked the Department of Agriculture to prepare a booklet showing how V.E. is spread by the feeding of raw garbage. The booklet will also show how to cook garbage properly, the equipment that is needed, and will show to what extent the cooking of garbage increases its palatability and reduces the death loss among pigs.

"The committee also recommended that no more federal indemnities be paid on swine breaking out with V.E. after June 1, 1953, if they are receiving raw garbage after that date. Many hog ranches in all parts of the Country are commencing to cook garbage and several have reported that cooking is profitable. Louisiana, Maryland, Wyoming, Nebraska, and Iowa (also Georgia, Illinois, Montana, South Dakota, Washington and Hawaii) already have passed legislation preventing the feeding of raw garbage to swine. Similar bills have been introduced in 23 states and13 more states are in the process of preparing legislation for introduction.

"The Bureau of Animal Industry will soon issue a revision of its regulations dealing with the eradication of vesicular exanthema. This revision will include several committee recommendations to speed up and strengthen the program and to bring federal and state governments into closer cooperation to make the eradication program successful."

EXHIBIT NO. 11

ACTION BY AMERICAN MEAT PACKING INDUSTRY AGAINST V.E.[1]

My name is E. W. Stephens, Western Representative of the *American Meat Institute*. The American Meat Institute is the Trade Association, Public Relations and Research Organization of the Meat Packing Industry on a National basis, with a membership of 700 packers, slaughterers, processors and sausage manufacturers from the smallest to the largest.

Vesicular exanthema is dangerous, virulent, spreads rapidly and is difficult to control. It is so closely akin to foot-and-mouth disease that a proper diagnosis cannot be made until a test for hoof-and-mouth disease is made, such a test requires several days.

Most outbreaks of vesicular exanthema that have occurred since last June and spread to 31 states throughout the country have been traced directly or indirectly to the feeding of raw garbage to hogs.

It should be the desire and responsibility of all segments of the livestock and meat industry as well as all state and federal regulatory officials to do all that is necessary to make certain that vesicular exanthema is stamped out as promptly as possible, and that reasonable safeguards against its reoccurrence are imposed.

The permitting of vesicular exanthema to continue in the swine herds of this country will affect adversely and seriously the demand for pork, even though vesicular exanthema in swine is not transmissible to humans.

To bring the effect of this disease down to the state level, its spread to other states has created a definite hazard in the procurement of hogs for slaughter, not only in California but other Pacific Coast and Western states.

All packers in California who slaughter two or more carloads of hogs per week must get their supplies from other states, principally the midwest. California slaughtered 2,300,000 hogs last year (1951) of which 1,900,000 head were shipped in from other states.

Trainloads of hogs were held up last summer at various feed and rest points. The stockyards quarantined until tests for foot-and-mouth disease were made, resulting in the steady flow of hogs to California packers for slaughter being greatly disrupted.

The existence of vesicular exanthema within California is a definite hazard to the health of hogs imported from other states and held for slaughter.

The State of Nebraska has already passed legislation this year providing for the proper cooking of garbage before it is fed to hogs, other states are considering similar legislation during the month ahead when their respective legislatures convene.

The board of directors of the American Meat Institute has instructed the institute to take every proper step necessary to effectuate the complete elimination of vesicular exanthema. In accomplishing this declared objective, the institute is authorized to cooperate with farm organizations and other groups interested in this problem.

We are not veterinarians or technicians on this particular subject, but we are ready and willing to support state and federal regulatory officials on whatever procedures they recommend as being appropriate for a complete eradication of the vesicular exanthema disease, and for the prevention of its reoccurrence.

We think that one of the most unfortunate aspects of efforts thus far to eradicate this disease, is the undue publicity that has been given at various meetings and the mistaken impressions that the general public has obtained from some of the published statements.

With reference to the accomplishment of this objective of eliminating V.E. the following exchange took place at this hearing:

Senator Hatfield: Has your organization any recommendation to make upon the specific request of the department that we have legislation requiring the compulsory cooking of garbage?

Mr. Stephens: Well, I would say this on that score, Mr. Hatfield, if the BAI and federal officials and the State Department of Agriculture deem that as sound, reasonable, and effective method of elimination of vesicular exanthema as well as a prevention of recurrence, why we will support and cooperate with them.

Senator Hatfield: As I understand the testimony this morning, * * * of both Dr. Duckworth representing the State Department of Agriculture and also Dr. McDonald representing the BAI, and if I recollect the testimony of Dr. McDonald, he said he had just had a telephone communication with Dr. Fladness of the BAI and that Dr. Fladness said he recommended enactment of such legislation.

Mr. Stephens: I don't see how you can approach it otherwise than to support your federal and state regulatory officials * * *.

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[1] From testimony before Joint Legislative Committee on Agriculture and Livestock Problems, Los Angeles, December 9, 1953.

EXHIBITS—ACTION BY OFFICIALS OF FEDERAL GOVERNMENT AND OTHER STATES

EXHIBIT NO. 12

UNITED STATES DEPARTMENT OF AGRICULTURE SPEAKS OUT AGAINST RAW GARBAGE

RAW GARBAGE SPREADS ANIMAL DISEASES

> "The cooking of garbage to be fed to swine is essential .... for the ultimate eradication of vesicular exanthema."
>
> Secretary's Advisory Committee

Prepared by the
BUREAU OF ANIMAL INDUSTRY
Agricultural Research Administration
UNITED STATES DEPARTMENT OF AGRICULTURE

CUTTING OFF SOURCES OF INFECTION

Proper heat treatment of garbage fed to livestock and poultry can cut animal disease losses. Proper heating, either through cooking or dehydration, kills disease-producing organisms. Garbage containing raw meat scraps and trimmings, however, can spread such damaging diseases as foot-and-mouth disease, vesicular exanthema, hog cholera, Newcastle disease in poultry, and many other infections.

Raw meat scraps in garbage fed to animals is particularly hazardous in spreading virus diseases. They can seldom be diagnosed in early stages. Yet meat, bones, and offal of animals slaughtered before symptoms show up can be contaminated and serve as a reservoir of infection when they are included in uncooked garbage.

SOURCES OF GARBAGE

Nearly every city or town has at least one garbage-feeding premise nearby. In the vicinity of large cities several hundred thousand hogs are fed on garbage each year. But whether large or small, each such premise can become a new source of infection. Size is not always important.

ADDING UP THE COSTS

All costs that can be charged to communicable animal diseases probably exceed a *billion* dollars a year. Some costs are direct, such as death and debilitation losses when an infectious disease invades a farmer's herd or flock; also the cost of disinfection procedures carried out by transporters of livestock or at stockyards and packing plants. Other costs are indirect. Necessary quarantines cause market dislocations and subsequent market fluctuations. When disease is widespread, markets all over the country often slump because of consumer fears. These fears may be groundless, but they do exist.

Cooking garbage will not prevent all such losses. But if the losses can be cut by only a small percent, the investment in cooking garbage is a wise one. Here are some of the reasons why:

Vesicular Exanthema. Almost without exception, each recent occurrence of vesicular exanthema in swine has been traced to hogs fed on raw garbage. Even infection by contact usually can be traced back to garbage-fed swine. Virus-infected meat scraps in untreated garbage are still carrying the disease into herd after herd at great cost to livestock owners, the packing industry, and the consuming public. Direct cost of eradication efforts to State and Federal Governments is amounting to about $15,000 a day. Indirect economic losses are probably much higher.

Foot-and-Mouth Disease. The last two outbreaks of foot-and-mouth disease in this country were traced to swine fed raw garbage from ships that had sailed from countries where the infection was prevalent. This most dreaded of all animal diseases has been kept out of the United States since 1929. Recognized authorities estimate that if foot-and-mouth disease gained a firm footing here today, it would cost at least $200,000,000 a year in the loss of meat, milk, and other animal products.

Hog Cholera: Direct losses from hog cholera have amounted to about $65,000,000 in a single year. Average annual loss for any 10-year period probably was not less than $20,000,000. If the indirect losses could be listed, these figures would be much larger. One method of spreading the disease is by feeding scraps of raw pork infested with the hog cholera virus in uncooked garbage.

Trichinosis: Recent investigations show 11.21 percent of hogs fed raw garbage are infested with trichinae, while only a fraction of 1 percent of grain-fed hogs are infested. Proper treating of garbage would kill these parasites as well as disease-causing bacteria and virus.

Newcastle Disease: The respiratory-nervous disorder of poultry known as Newcastle disease was first recognized in this country about 1940. Since then it has spread to all 48 states, causing mortality losses varying from 10 to 60 percent of the affected flocks. On many farms throughout the country, poultry flocks have access to raw garbage. When that garbage contains bits of raw poultry waste and offal infected with Newcastle disease, the infection is easily spread.

The feeding of untreated garbage also is a means of spreading *tuberculosis in swine, swine erysipelas, vesicular stomatitis*, and many poultry disorders.

GETTING THE JOB DONE THROUGH COOPERATION

This country has a proud record of animal disease eradication and control. Nearly 70 years ago the first state and federal cooperative program was begun to eradicate pleuropneumonia in cattle. The job was done. Under this same system the fever tick was eradicated. Six outbreaks of foot-and-mouth disease have been successfully snuffed out. Bovine tuberculosis and scabies in sheep and cattle virtually have been whipped, and great inroads have been made in eliminating brucellosis in cattle. One fact is paramount in all of these highly successful programs. They were designed and carried out cooperatively by the states and the Federal Bureau of Animal Industry.

THE IMMEDIATE PROBLEM: VESICULAR EXANTHEMA

Because of the inherent dangers of vesicular exanthema—it could serve to cloak the appearance of foot-and-mouth disease—groups representing all segments of the livestock industry are urging a strengthened program to eradicate the disease.

A special advisory committee representing these groups had this to say to the Secretary of Agriculture: "* * * this committee * * * affirms the stand of cooperating states and the U. S. Department of Agriculture * * * and this committee is dedicated to eradicate vesicular exanthema." The committee also recommended that: "the cooking of garbage fed to swine (excluding waste products derived exclusively from non-animal sources) *is essential for the ultimate eradication of vesicular exanthema.*"

HOW CAN GARBAGE FEEDING BE CONTROLLED?

Most feeders of raw garbage obtain the garbage, feed it, and market their hogs within the boundaries of a single state. For this reason sanitary requirements are under the jurisdiction of the states. Several states have passed legislation to require the cooking of garbage and other sanitary measures. Many other states are considering similar action.

When these sanitary requirements are added to those already in effect it should be possible to eradicate vesicular exanthema and the losses from many other infectious diseases should be reduced materially. The sooner the job can be done, the less expensive it will be to the producer, the handler, and the consumer.

EXHIBIT NO. 12a

ACTION BY UNITED STATES DEPARTMENT OF AGRICULTURE

Basic Order of B. A. I. Authorizing Cooperation With States in Payment of Indemnities to Prevent Animal Diseases, and Regulations Applying Thereto

B. A. I. ORDER 376
(Revision of November 15, 1949)

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Administration
Bureau of Animal Industry

PREVENTION OF ANIMAL DISEASES: COOPERATION WITH STATES

Under authority conferred upon the Secretary of Agriculture by Sections 3 and 11 of the Act of Congress approved May 29, 1884, as amended (21 U. S. C. 114 and 114a), Section 2 of the Act of Congress approved February 2, 1903, as amended (21 U. S. C. 111), and the recurring provision in the annual appropriation act for the Department of Agriculture for the payment of claims growing out of the purchase and destruction of animals and materials affected by or exposed to **foot-and-mouth** disease, pleuropneumonia, rinderpest, and **other contagious or infectious animal diseases** (21 U. S. C. and Supp. 129), Part 53, Subchapter B, Chapter I, Title 9 of the Code of Federal Regulations is hereby amended to read as follows:

Part 53—Foot-and-mouth disease, pleuropneumonia, rinderpest, and other contagious or infectious animal diseases which in the opinion of the secretary constitute an emergency and threaten the livestock industry of the Country

Sec. 53.1. Definitions. Words used in this part in the singular form shall be deemed to import the plural and vice versa, as the case may demand. Unless otherwise clearly indicated by the context, whenever the following words, names, or terms are used in the regulations in this part, they shall be construed, respectively, to mean:

(a) Department. The United States Department of Agriculture.

(b) Secretary. The Secretary of Agriculture of the United States.

(c) Bureau. The Bureau of Animal Industry, Agricultural Research Administration, United States Department of Agriculture.

(d) Bureau Employee. Any inspector or other individual employed in the bureau who is authorized by the chief of bureau to do any work or perform any duty in connection with the control and eradication of disease.

(e) Inspector in Charge. An inspector of the bureau who is designated by the chief of bureau to take charge of work in connection with the control and eradication of disease as defined in this section.

(f) Disease. Foot-and-mouth disease, rinderpest, contagious pleuropneumonia, or any other contagious, infectious, or communicable disease of animals (including poultry), which in the opinion of the secretary constitutes an emergency and threatens the livestock industry of the country.

(g) Materials. Parts of barns or other structures, straw, hay and other feed for animals, farm products or equipment, clothing, and articles stored or contained in or adjacent to barns or other structures.

(h) Person. Natural person, firm, partnership, corporation, company, society, and association, and every officer, agent, or employee thereof.

(i) State. Each and every one of the States of the United States, the District of Columbia, and the Territories and possessions of the United States.

Sec. 53.2. Determination of Existence of Disease—Agreements With States. (a) Upon declaration by the Secretary of Agriculture of the existence of any disease which in his opinion threatens the livestock industry of the Country, the chief of bureau is hereby authorized **to invite the proper state authorities** to cooperate with the department in the **control and eradication of such disease.**

(b) Upon agreement of the authorities of a state to enforce quarantine restrictions and orders and directives properly issued in the control and eradication of such disease, and to pay 50 percent of the expenses of (1) purchase, destruction, and disposition of animals and materials affected by or exposed to the disease, and (2) disinfection of infected premises within the state, the chief of bureau is hereby authorized to agree, on the part of the department, to cooperate with the state in the control and eradication of the disease and to pay not more than 50 percent of such expenses: *Provided*, That the Secretary may authorize other arrangements for the payment of such expenses upon finding that an extraordinary emergency exists.

Sec. 53.3. Appraisal of animals and materials.—(a) Animals affected by or exposed to disease, and materials required to be destroyed because of being contaminated by or exposed to disease shall be appraised by a bureau employee and a representative of the state jointly, or, if the state authorities approve, by a bureau employee alone.

(b) The appraisal of animals shall be based on the meat, egg production, dairy or breeding value, but in the case of appraisal based on breeding value, no appraisal of any animal shall exceed three times its meat, egg production, or dairy value: *Provided*, That poultry may be appraised in groups when the basis for appraisal is the same for each bird.

(c) Appraisals of animals shall be reported on forms furnished by the bureau. Reports of appraisals shall show the number of animals of each species and the value per head or the weight and value by pound.

(d) Appraisals of materials shall be reported on forms furnished by the bureau. Reports of appraisals of materials shall, when practicable, show the number, size or quantity, unit price, and total value of each kind of material appraised.

(e) Reports of appraisals shall be made in duplicate and signed by the appraiser, or appraisers, as the case may be. One copy shall be attached to the voucher in which compensation is claimed.

Sec. 53.4. Destruction of Animals. (a) Animals affected by or exposed to disease shall be killed promptly after appraisal and disposed of by burial or burning, unless otherwise specifically provided by the chief of bureau in extraordinary circumstances.

(b) The killing of animals and the burial, burning, or other disposal of carcasses of animals pursuant to these regulations shall be supervised by a bureau employee who shall prepare and transmit to the chief of bureau a report identifying the animals and showing the disposition thereof.

Sec. 53.5. Disinfection or Destruction of Materials. (a) In order to prevent the spread of disease, materials contaminated by or exposed to disease shall be disinfected: Provided, however, That in all cases in which the cost of disinfection would exceed the value of the materials or disinfection would be impracticable for any reason, the materials shall be destroyed, after appraisal as provided in section 53.3.

(b) The disinfection or destruction of materials under this section shall be under the supervision of a bureau employee who shall prepare and transmit to the chief of bureau a certificate identifying all materials which are destroyed, showing the disposition thereof.

Sec. 53.6. Disinfection of Animals. Animals of species not susceptible to the disease for which a quarantine has been established, but which have been exposed to the disease, shall be disinfected when necessary by such methods as the chief of bureau shall prescribe from time to time.

Sec. 53.7. Disinfection of Premises, Conveyances, and Materials. All premises, including barns, corrals, stockyards and pens, and all cars, vessels, aircraft, and other conveyances, and the materials thereon, shall be cleaned and disinfected under supervision of a bureau employee whenever necessary for the control and eradication of disease. Expenses incurred in connection with such cleaning and disinfection shall be shared according to the agreement reached under section 53.2 with the state in which the work is done.

Sec. 53.8. Presentation of Claims. Claims for (a) compensation for the value of animals, (b) cost of burial, burning or other disposition of animals, (c) the value of material destroyed, and (d) the expenses of destruction, shall each be presented, through the inspector in charge, to the bureau on separate vouchers in form approved by the chief of bureau.

Sec. 53.9. Mortgage and Other Liens Against Animals or Materials. When animals or materials have been destroyed pursuant to the requirements contained in this part, and compensation therefor is claimed, the claimant shall declare any mortgages or liens against such animals or materials, and the inspector in charge shall take reasonable precaution to determine, prior to his approval of vouchers covering such compensation, who is the owner of the animals or materials and whether there are any such mortgage or other liens outstanding against them. If it appears that there are outstanding liens, a full report regarding them shall be made and shall accompany the voucher. Every such report shall include a description of the liens, the name of the person or persons having possession of the documentary evidence thereof, and a statement showing what arrangements, if any, have been made to discharge the liens. Every such report shall also include a statement of any claims other than liens outstanding against the animals or materials destroyed.

Sec. 53.10. Claims Not Allowed. (a) The department will not allow claims arising under the terms of this part if the payee has not complied with all quarantine requirements.

(b) Expenses for the care and feeding of animals held for destruction will not be paid by the department, unless the payment of such expense is specifically authorized or approved by the chief of bureau.

(c) The department will not allow claims arising out of the destruction of animals or materials unless they shall have been appraised as prescribed in this part and the owners thereof shall have executed a written agreement to the appraisals.

EXTRACTS OF LAWS UNDER WHICH THE FOREGOING ORDER IS ISSUED

An act for the establishment of a Bureau of Animal Industry, to prevent the exportation of diseased cattle, and to provide means for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals.

Sec. 3. That it shall be the duty of the Commissioner of Agriculture to prepare such rules and regulations as he may deem necessary for the speedy and effectual suppression and extirpation of said diseases, and to certify such rules and regulations to the executive authority of each state and territory, and invite said authorities to cooperate in the execution and enforcement of this act. Whenever the plans and methods of the Commissioner of Agriculture shall be accepted by any state or territory in which pleuro-pneumonia, or other contagious, infectious, or communicable disease is declared to exist, or such state or territory shall have adopted plans and methods for the suppression and extirpation of said diseases, and such plans and methods shall be accepted by the Commissioner of Agriculture, and whenever the governor of a state or other properly constituted authorities signify their readiness to cooperate for the extinction of any contagious, infectious, or communicable disease in conformity with the provisions of this act, the Commissioner of Agriculture is hereby authorized to expend so much of the money appropriated by this act as may be necessary in such investigations and in such disinfection and quarantine measures as may be necessary to prevent the spread of the disease from one state or territory into another. Approved, May 29, 1884. (21 U. S. C. 114.)

Sec. 11. The Secretary of Agriculture, either independently or in cooperation with states or political subdivisions thereof, farmers' associations, and similar organizations, and individuals, is authorized to control and eradicate tuberculosis and paratuberculosis of animals, avian tuberculosis, Bang's disease of cattle, southern cattle ticks, hog cholera and related swine diseases, scabies in sheep and cattle, dourine in horses, and contagious or infectious diseases of animals (such as foot-and-mouth disease, rinderpest, and contagious pleuro-pneumonia) which in the opinion of the secretary constitute an emergency and threaten the livestock industry of the country, including the purchase and destruction of diseased or exposed animals (including poultry), or the destruction of such animals and the payment of indemnities therefor, in accordance with such regulations as the secretary may prescribe. As used in this section, the term "state" includes the District of Columbia and the territories and possessions of the United States. Approved September 21, 1944. (21 U. S. C. 114a.)

An act to enable the Secretary of Agriculture to more effectually suppress and prevent the spread of contagious and infectious diseases of livestock, and for other purposes.

Sec. 2. That the Secretary of Agriculture shall have authority to make such regulations and take such measures as he may deem proper to prevent the introduction or dissemination of the contagion of any contagious, infectious, or communicable disease of animals from a foreign country into the United States or from one state or territory of the United States or the District of Columbia to another, and to seize, quarantine, and dispose of any hay, straw, forage, or similar material, or any meats, hides, or other animal products coming from an infected foreign country to the United States, or from one state or territory or the District of Columbia in transit to another state or territory or the District of Columbia whenever in his judgment such action is advisable in order to guard against the introduction or spread of such contagion. Approved February 2, 1903. (21 U. S. C. 111.)

EXHIBIT NO. 13

PROPOSED ACTION BY UNITED STATES DEPARTMENT OF AGRICULTURE,[1] FEBRUARY, 1953

AMENDMENT TO BASIC ORDER LISTED IN EXHIBIT NO. 12a

This is a preliminary draft of a proposed regulation, it is *not* a regulation.

This draft was prepared *March 3, 1953*, following the meeting on February 28th of the Vesicular Exanthema Advisory Committee.

CODE OF FEDERAL REGULATIONS

TITLE 9. ANIMALS AND ANIMAL PRODUCTS

CHAPTER I. BUREAU OF ANIMAL INDUSTRY

Subchapter B. Prevention of Animal Diseases; Cooperation With States

Part 53. Foot-and-Mouth Disease, Pleuropneumonia, Rinderpest, and Other Contagious or Infectious Animal Diseases Which Constitute an Emergency and Threaten the Livestock Industry of the Country

53.1. Definitions.

(j) "*Swine product*" means any carcass, part, or offal of swine.

(*l*) "*Garbage*" means wastes consisting in whole or in part of animal wastes resulting from handling, preparing, cooking, and consuming of foods including the offal from animal carcasses or parts thereof.

(m) "*Cooked garbage*" means garbage that has been heated according to a method approved by the chief of bureau.

(n) "*Special processing*" means subjecting swine products to heat treatment in accordance with the requirements contained in this part.

(o) "*Public stockyards*" means stockyards where trading in livestock is carried on; where yarding, feeding, and water facilities are provided by the stockyards, transportation, or similar company; and where federal inspection is maintained for the inspection of livestock for communicable diseases.

53.11. Vesicular Diseases

(a) General

(1) Reporting. A case of suspected vesicular disease shall be immediately reported by telephone, telegram, or quickest means of communication to the state livestock sanitary office and the veterinarian in charge of the bureau's animal disease control program in the state so that the disease may be diagnosed promptly and the quarantine measures provided for in this part may be undertaken without delay.

(2) Diagnosis. When a suspected case of a vesicular disease is reported, a field investigation shall be conducted promptly and jointly by the bureau's field office in the state and representatives of the state livestock sanitary office. If the possibility of a vesicular disease cannot be definitely eliminated, the bureau's representative shall immediately call upon the nearest specially trained diagnostician for assistance and at the same time shall report by telegraph or telephone to the bureau's Washington office. If, in the judgment of the state and bureau veterinarians, the reported condition is found to be clearly some condition other than a vesicular disease, the trained diagnostician need not be called; however, a full report of the case shall be furnished to the bureau's Washington office. The report shall include the name and address of the owner of the animal or animals, the location of the premises, species and number of animals on the premises, species and number of animals affected by the reported condition, description of the symptoms, including mention of losses, if any, and conclusions reached as to the cause and nature of the condition.

(b) VESICULAR EXANTHEMA.

(1) Except as provided by the chief of bureau the interstate movement of all swine or swine products which are not specially processed is prohibited from states in which vesicular exanthema is known to exist unless:

(i) A strict quarantine is maintained by the state over swine infected with or exposed to vesicular exanthema and the premises on which such swine are located. The quarantine shall consist of such policing as to assure adequate 24-hour quarantine each day prohibiting the movement onto or from such premises of all swine or swine products; the movement of any person, domestic animals other than swine, or vehicles onto or from such premises shall be so controlled as to preclude the spread of infection. After disposal of the infected or exposed swine the premises shall be thoroughly disinfected.

(ii) The state requires that swine infected with or exposed to vesicular exanthema be slaughtered or buried or specially processed in accordance with subparagraph (4) of this paragraph within a period of seven days following the determination of the existence of the disease unless otherwise approved by the chief of bureau. The handling and transportation of the infected or exposed swine incident to their disposition shall be under state or state-deputized federal employee supervision and shall be surrounded with necessary safeguards to preclude spread of the disease. The interstate movement of such swine is prohibited except as may be authorized by the chief of bureau.

(iii) **The state makes inspections of garbage-fed swine and premises on which the feeding of garbage to swine is being conducted and such inspections be so timed as to assure the detection of the occurrence of vesicular exanthema among such swine and to enable the inspector to satisfy himself as to whether or not the garbage on a particular premises is being adequately cooked prior to feeding.** All swine from premises where garbage is fed shall be shipped under official supervision and the movement of such swine shall be made only by state permit. At the time of shipment from the premises all swine fed cooked garbage to the exclusion of uncooked garbage shall be identified by a health certificate issued by the state and signed by a veterinarian specifying that they have originated on premises that fed cooked garbage and that veterinary inspection of the hogs on the premises just prior to shipment disclosed no evidence of vesicular exanthema. Swine originating on premises where garbage other than cooked garbage is fed shall be moved under state supervision in sealed vehicles for immediate slaughter and accompanied by a health certificate issued by the state and signed by a veterinarian specifying that veterinary inspection of the hogs on the premises just prior to shipment disclosed no evidence of vesicular exanthema; the swine products of such swine shall be required to be *specially processed*.

(iv) The state requires that cars, boats, trucks, and other vehicles and their equipment which have been used to transport swine in intrastate commerce be cleaned and disinfected at a point designated by the state for that purpose. No swine shall be transported for any purpose in any car, boat, truck, or other vehicle which has been used in the transportation of livestock since such vehicle was last cleaned and disinfected in accordance with this paragraph. The carrier shall be responsible for having all cars, boats, trucks, and other vehicles and their equipment referred to in this subparagraph cleaned and disinfected at a point designated by the State for cleaning and disinfection of such vehicles. The following prescribed method of cleaning and disinfecting shall be used: Remove all litter and manure from all portions of each car, boat, truck, or other vehicle including on all ledges and framework outside, clean the interior and the exterior of each such vehicle and their equipment; saturate the entire interior surface including all doors, end-gates, portable chutes, and similar equipment with one of the disinfectants prescribed in subparagraph (7) of this paragraph.

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[1] Governor Earl Warren of California was so advised of proposed regulations by letter from Secretary of Agriculture Ezra Benson, March 6, 1953.

(v) The state requires stockyards, salesbarns, feed, water, and rest stations, loading pens, and other similar facilities with the exception of public stockyards, used in handling or reasonably suspected of having been used in handling swine infected with or exposed to vesicular exanthema be cleaned and disinfected under its supervision. No such yards or premises shall be used in handling swine until after the cleaning and disinfection provided for in this paragraph have been completed. The following prescribed method of cleaning and disinfection shall be used: Empty all troughs, racks, and other feeding or watering appliances; remove all litter and manure from the floors, posts, or other parts and saturate the entire surface of the fencing, troughs, chutes, floors, walls, and all other parts with one of the disinfectants prescribed in subparagraph (7) of this paragraph.

(2) Except as provided by the Chief of the Bureau the interstate movement of all swine or swine products which are not specially processed is prohibited from states in which there is reason to believe that vesicular exanthema may exist unless:

(i) **The state makes inspections of garbage-fed swine and premises on which the feeding of garbage to swine is being conducted and such inspections be so timed as to assure the detection of the occurrence of vesicular exanthema among such swine and to enable the inspector to satisfy himself as to whether or not the garbage on a particular premises is being adequately cooked prior to feeding.** All swine from premises where garbage is fed shall be shipped under official supervision and the movement of such swine shall be made only by state permit. At the time of shipment from the premises all swine fed cooked garbage to the exclusion of uncooked garbage shall be identified by a health certificate issued by the state and signed by a veterinarian specifying that they have originated on premises that fed cooked garbage and that veterinary inspection of the hogs on the premises just prior to shipment disclosed no evidence of vesicular exanthema. Swine originating on premises where garbage other than cooked garbage is fed shall be moved under state supervision in sealed vehicles for immediate slaughter and accompanied by a health certificate issued by the state and signed by a veterinarian specifying that veterinary inspection of the hogs on the premises just prior to shipment disclosed no evidence of vesicular exanthema; the swine products of such swine shall be required to be *specially processed*.

(ii) The state requires that cars, boats, trucks, and other vehicles and their equipment which have been used to transport swine in intrastate commerce be cleaned and disinfected at a point designated by the state for that purpose. No swine shall be transported for any purpose in any car, boat, truck, or other vehicle which has been used in the transportation of livestock since sush vehicle was last cleaned and disinfected in accordance with this paragraph. The carrier shall be responsible for having all cars, boats, trucks, and other vehicles and their equipment referred to in this subparagraph cleaned and disinfected at a point designated by the state for cleaning and disinfection of such vehicles. The following prescribed method of cleaning and disinfecting shall be used: Remove all litter and manure from all portions of each car, boat, truck, or other vehicle including on all ledges and framework outside, clean the interior and the exterior of all such vehicles and their equipment; saturate the entire interior surface including all doors, end-gates, portable chutes, and similar equipment with one of the disinfectants prescribed in subparagraph (7) of this paragraph.

(iii) The state requires stockyards, salesbarns, feed, water, and rest stations, loading pens, and other similar facilities with the exception of public stockyards, used in handling or reasonably suspected of having been used in handling swine infected with or exposed to vesicular exanthema be cleaned and disinfected under its supervision. No such yards or premises shall be used in handling swine until after the cleaning and disinfection provided for in this paragraph have been completed. The following prescribed method of cleaning and disinfection shall be used: Empty all troughs, racks, and other feeding or watering appliances; remove all litter and manure from the floors, posts, or other parts and saturate the entire surface of the fencing, troughs, chutes, floors, walls, and all other parts with one of the disinfectants prescribed in subparagraph (7) of this paragraph.

(3) For the purpose of applying the provisions contained in this paragraph the Chief of Bureau shall designate the state or states in which vesicular exanthema is known to exist and the state or states in which there is reason to believe it may exist.

(4) All swine products required to be specially processed shall be heated throughout according to the following schedules:

(i) Boneless portions and parts of carcasses shall be heated to at least 156 degrees F. momentarily or for temperatures lower than that to a minimum of 145 degrees F. and held for 15 minutes.

(ii) Parts of carcasses containing bone shall be heated to attain an internal temperature of at least 156 degrees F. for 15 minutes.

(5) Cars, boats, trucks, and other vehicles and their equipment which have been used to transport swine in interstate commerce shall be cleaned and disinfected at a point designated by the chief of bureau. Except as the chief of bureau may provide, no swine shall be transported for any purpose in any car, boat, truck, or other vehicle which has been used in the transportation of livestock since such vehicle was last cleaned and disinfected in accordance with this paragraph. The carrier shall be responsible for having all cars, boats, trucks, and other vehicles and their equipment referred to in this subparagraph cleaned and disinfected at a point designated by the chief of bureau where supervision is being maintained over the cleaning and disinfection of such vehicles. The cleaning and disinfection is to be done without expense to the bureau. The following prescribed method of cleaning and disinfecting shall be used: remove all litter and manure from all portions of each car, boat, truck, or other vehicle including all the ledges and framework outside; clean the interior and the exterior of each such vehicle and its equipment; saturate the entire interior surface including all doors, end-gates, portable chutes, and similar equipment with one of the disinfectants prescribed in subparagraph (7) of this paragraph.

(6) Public stockyards used in handling or reasonably suspected of having been used in handling swine infected with or exposed to vesicular exanthema shall be cleaned and disinfected under bureau supervision. No such public stockyard shall be used in handling swine until after the cleaning and disinfection provided for in this paragraph has been completed. The cleaning and disinfection is to be done without expense to the bureau. The following prescribed method of cleaning and disinfecting shall be used: empty all troughs, racks, and other feeding or watering appliances; remove all litter and manure from the floors, posts, or other parts and saturate the entire surface of the fencing, troughs, chutes, floors, walls, and all other parts with one of the disinfectants prescribed in subparagraph (7) of this paragraph.

(7) The disinfections required in this paragraph shall be done with one of the following:

(i) Soda ash (sodium carbonate) used at the rate of one pound in three gallons of water.

(ii) Sal soda. Used at the rate of 12½ ounces to one gallon of water.

(iii) Lye (sodium hydroxide). Used at the rate of 13 ounces to five gallons of water. (Owing to the extreme caustic nature of sodium hydroxide solution, precautionary measures such as the wearing of rubber gloves and boots to protect the hands and feet, and goggles to protect the eyes, should be taken by those engaged on the disinfection job. It is also advisable to have an acid solution, such as vinegar, in readiness in case any of the sodium hydroxide solution should come in contact with any part of the body.)

EXHIBIT NO. 14

PRACTICAL EFFECT OF REQUIREMENT TO SPECIALLY PROCESS SWINE PRODUCTS OF SWINE ORIGINATING ON PREMISES WHERE OTHER THAN COOKED GARBAGE IS FED

MEMORANDUM FROM DR. GEOFFREY A. BOYD, CHIEF, BUREAU OF MEAT INSPECTION, CALIFORNIA DEPARTMENT OF AGRICULTURE

Sacramento, March 5, 1953

In the preparation of pork products for human food from the dressed hog carcass, the carcass first is divided into the various pork cuts known in the meat trade as hams, shoulders, shoulder butts, bacon, loins, spareribs, jowls, fat backs and minor cuts such as feet, neck bones and tails. From the above operations many trimmings containing both lean and fat also result. Some heads may be left attached to the carcass but most heads are worked up into cheek and head meat at the time of slaughter.

Only a small part of the meat resulting from the pork carcass is usually sold fresh. This includes the pork loins, pork shoulder butts, spareribs, neck bones and pork sausage made from trimmings and other cuts. This represents about 30 percent of the carcass but may vary within wide limits if other cuts are sold fresh or made into fresh pork sausage.

The balance of the hog carcass, representing about 70 percent of the meat, is prepared for food by further processing before sale. This processing includes the rendering of the fat into lard, the curing and smoking of hams, bacon, pork shoulders, pork shoulder butts and jowls, the salting of heavy sides for salt pork, the curing and cooking of pigs' feet, tongues, etc., and the manufacture into sausage, meat loaves, head cheese, etc., of any or all parts of the carcass and edible organs.

Many of the above processing operations include the use of heat. For example, lard is rendered from pork fat at about 250 degrees F., bacon is smoked at about 115 degrees F., hams, shoulders and shoulder butts are smoked and heated to a temperature of 137 degrees F., pigs' feet, head cheese, liver sausage, boiled hams, meat loaves, bologna, cooked salami, etc., are heated to a temperature of from 150 degrees F. to 160 degrees F. during processing.

Some sausage products containing pork are sold neither fresh nor cooked but are cured or cured and dried during processing. Such products include Italian salami, linguisa and so-called fresh Italian or Swiss sausage. The pork used in such products usually is frozen at temperatures and for periods of time sufficient to destroy trichina or the products are held for long curing and drying periods to accomplish the same purpose.

The order of the U. S. B. A. I. to require the heating of all pork products from hogs originating in areas quarantined for V.E., which includes all of California, certainly would upset the normal operations of the pork packer.

The temperatures specified in the B. A. I. order, a minimum of 145 degrees F. internal temperature for boneless products and a minimum of 156 degrees F. internal temperature for products which contain bone, normally are used in the processing of only a small part of the entire pork supply. These products include cooked hams, cooked sausage and loaf products, to name the most important. Such temperatures could be applied to some other products such as ordinary smoked hams, shoulders and shoulder butts, but with a greatly increased shrink in the finished products and higher prices to the consumer.

Supplies of pork to be distributed fresh, including pork sausage and pork for products such as linguisa and dry salami, would have to be procured from areas not quarantined for V.E. and would have to be handled separately in the meat plant.

The separate handling of pork from quarantined and free areas would place an extra burden and expense on the meat packer and require strict and constant supervision from the inspection service to see that no pork originating in quarantined areas got into the pork supply intended to be distributed fresh.

Only the larger of the meat processors in the State have proper equipment to handle both kinds of pork at the same time and it is doubtful if many of them would handle the pork from quarantined areas unless it could be obtained at a much lower price than they could get pork for from areas free from V.E. The smaller meat processor would, in most cases, be able to handle only one kind of pork—that from either quarantined or free areas.

(Signed) G. A. Boyd

In this regard the following correspondence from Mr. E. D. Fletchall, Swift & Company, South San Francisco, is of considerable interest as an indication of what an order requiring "special processing" would do to the value of raw garbage fed live hogs:

SWIFT & COMPANY

March 5, 1953

Referring to our telephone conservation of today: As we pointed out, we have not had any experience which would indicate just what the reduction in the live hog value would be if the entire hog would have to be processed. However, from information that we have received, there are indications that this reduction might be at least 50 percent. We suggest that for accurate information that you contact Dr. Beagle, U. S. Department of Agriculture in Portland, Oregon. It is our understanding that they have had some experience there, and he should be in position to give you accurate information.

Very truly yours,

Swift & Company
E. D. Fletchall

EXHIBIT NO. 15

ACTION BY ADVISORY COMMITTEE ON VESICULAR EXANTHEMA RE: THE PROPOSED PROGRAM OF THE U. S. BUREAU OF ANIMAL INDUSTRY, FEBRUARY, 1953

February 28, 1953

The Advisory Committee on Vesicular Exanthema met in Washington, D. C., February 28, and made the following recommendations to the Secretary of Agriculture:

1. That the objective of the committee and the Department of Agriculture be confirmed that they are dedicated to the eradication of vesicular exanthema and that every effort possible be made to accomplish this fact.

2. That the proposed program be adopted and put into effect to the extent that the Department is able under the present law.

3. That the solicitor of the department draw up an amendment to the 1905 law (33 Stat. 1264) to clarify and strengthen the existing authority of the Department of Agriculture when vesicular exanthema exists to a widespread extent in this Country in order that the secretary may issue such rules and regulations as are necessary to eliminate its spread with respect to swine, movement of swine, swine products, vehicles in transporting swine, etc.

4. That the department carry on an active program of accelerated research to determine the location of the virus, the manner in which it is excreted from the animal body, the length of time recovered hogs may be harboring the virus, and all other pertinent questions to which we do not have the answer right now.

5. The committee recognizes that it is unfortunate that the general restrictions outlined in the proposed regulations, when enforced, will create extreme hardship and financial loss to producers of livestock, marketing agencies, transportation companies, processors of livestock, and many others who actually are not directly involved in the perpetuation and dissemination of vesicular exanthema. In order to prevent undue effects of the restrictions it is recommended that the following steps be taken before the restrictions are imposed:

(a) That the proper state officials, including the Governors, Legislative Government, Commissioner of Agriculture, and the Livestock sanitary officials be immediately informed regarding the full implications of the action contemplated in these regulations.

(b) That the general farm and livestock organizations, as well as all other segments of the livestock and meat industry, be fully informed regarding the provisions of this vesicular exanthema eradication program.

(c) That each segment of the livestock industry (railroads and stockyards and salesyards men) be fully informed regarding their responsibilities under these regulations governing the eradication of vesicular exanthema and that they be fully encouraged to discharge their responsibility.

6. That the cooking of garbage (the term "garbage" would not be construed to include waste derived exclusively from nonanimal sources) fed to swine is essential for the ultimate eradication of vesicular exanthema and that every effort should be made to encourage the individual states to enact appropriate legislation and for the department and the Federal Government to do the things within their power to accomplish this.

7. That it would be desirable and helpful if the department would prepare an informational circular relating to the feeding of garbage to livestock and poultry in connection with the prevention of the transmission of communicable diseases. The circular should include a bibliography of all material available on cooking garbage, and the benefits, if any, from cooking it, and have some information that would be really helpful to garbage-feeding hog ranches.

8. That the department make further study of the ways and means whereby animals in transport can be protected from exposure to disease through feed, water, rest, and other facilities that are necessary in long distance transportation, including the advisability of installing feed racks, and water troughs in railroad cars, considering the protection of the owner, packers, and the producers from undue shrinkage in transportation by this method, also considering the humane handling of the animals.

9. That no federal indemnities will be paid after June 1, 1953, on outbreaks of vesicular exanthema for hogs from premises where raw garbage is fed. In order to make progress in cleaning up the disease the Department of Agriculture should develop an agreement with the states prior to June 1, 1953, that would involve the sharing of payment of indemnities for affected or exposed garbage-fed hogs.

EXHIBIT NO. 16

ACTION BY UNITED STATES DEPARTMENT OF AGRICULTURE, NOVEMBER, 1952

SUBCHAPTER C—INTERSTATE TRANSPORTATION OF ANIMALS AND POULTRY

B. A. I. Order 383

PART 76—HOG CHOLERA, SWINE PLAGUE, AND OTHER COMMUNICABLE SWINE DISEASES

Quarantine and Regulations Restricting Interstate Transportation of Swine and Certain Swine Products Because of Vesicular Exanthema

November 13, 1952

Pursuant to the authority conferred by Sections 1 and 3 of the Act of March 3, 1905, as amended (21 U. S. C. 123 and 125), Sections 1 and 2 of the Act of February 2, 1903, as amended (21 U. S. C. 111 and 120), and Section 7 of the Act of May 29, 1884, as amended (21 U. S. C. 117), the notice of the existence of the swine disease as vesicular exanthema in certain localities and the quarantine and regulations restricting the movement of swine and certain swine products because of vesicular exanthema, heretofore issued as Amendments 7 to 16 of B. A. I. Order 309 and appearing in Sections 76.9 through 76.13 constituting Subpart B of Part 76, Title 9, Code of Federal Regulations, are hereby redesignated as B. A. I. Order 383, to appear in §§ 76.25-76.29 constituting said Subpart B, and are hereby amended to read as follows:

Subpart B—Vesicular Exanthema

76.25. Definitions.
76.26. Notice and Quarantine.
76.27. General Restriction.
76.28. Movement of Swine and Swine Products.
76.29. Disinfection of Facilities.

§ 76.25. Definitions. As used in this subpart, the following terms shall have the meanings set forth below.

(a) *Bureau.* The term "bureau" means the Bureau of Animal Industry of the United States Department of Agriculture.

(b) *Chief of the Bureau.* The term "chief of the bureau" means the chief of the bureau or any other official of the bureau to whom authority has heretofore been delegated or may hereafter be delegated to act in his stead.

(c) *Person.* The term "person" means any person, company or corporation.

(d) *Moved.* As applied to swine, the term "moved" means transported, shipped, delivered or received for transportation, driven on foot or caused to be driven on foot, by any person, and as applied to swine products, the term "moved" means transported, shipped or delivered or received for transportation, by any person.

(e) *Swine Product.* The term "swine product" means any carcass, part or offal of swine.

(f) *Interstate.* The term "interstate" means from one state, territory, or the District of Columbia, into or through any other state, territory, or the District of Columbia.

(g) *Clean Stockyard.* The term "clean stockyard" means a public stockyard at which bureau inspection service is maintained and which is found by the chief of the bureau to be free from the infection of vesicular exanthema.

§ 76.26. Notice and Quarantine. (a) Notice is hereby given that the contagious, infectious and communicable disease of swine known as vesicular exanthema exists in the following areas:

The State of California, except Modoc and Siskiyou Counties;
St. Clair County; Jarvis Township in Madison County; Columbia Township in Monroe County, in Illinois;
Bristol County in Massachusetts;
Thetford, Forest, Genesee and Richfield Townships in Genesee County; Green Oak Township in Livingston County; Lyon and Novi Townships in Oakland County; Ann Arbor, Dexter, Lima, Northfield, Salem, Scio, Superior and Webster Townships in Washtenaw County; and Canton and Northville Townships in Wayne County, in Michigan;
St. Louis County in Missouri;
Burlington, Camden, Gloucester, Hudson, Morris, and Ocean Counties in New Jersey;
New York County and Clarkston Township in Rockland County, in New York;
Council Grove, Mustang, Oklahoma and Greeley Townships in Oklahoma County, in Oklahoma;
York County in Pennsylvania;
Dallas County, Tarrant County, and that part of Parker County lying north of U. S. Highway 180 and east of State Highway No. 51, in Texas.

(b) The Secretary of Agriculture, having determined that swine in the states named in paragraph (a) of this section are affected with the contagious, infectious and communicable disease known as vesicular exanthema and that it is necessary to quarantine the areas specified in paragraph (a) of this section and the following additional areas in such states, in order to prevent the spread of said disease from such states, hereby quarantines the areas specified in paragraph (a) of this section and in addition Bergen, Essex, and Union Counties in New Jersey.

§ 76.27. General Restriction. No swine or swine products shall be moved interstate from or through any quarantined area specified in § 76.26 except as provided in the regulations in this subpart.

§ 76.28. Movement of Swine and Swine Products. (a) *From a Quarantined Area.* (1) No swine shall be moved interstate from any quarantined area specified in § 76.26 except to an establishment specifically approved for the purpose by the chief of the bureau, for immediate slaughter and further processing at such establishment in a manner approved by said chief as adequate to prevent the spread of vesicular exanthema:

Provided, however, That notwithstanding the foregoing restriction, swine which are moved into a quarantined area from a point outside the quarantined areas specified in § 76.26 directly to a clean stockyard in such quarantined area may be moved interstate from such stockyard under conditions prescribed by said chief, directly to an establishment specifically approved for the purpose by said chief for immediate slaughter in a manner approved by said chief, as adequate to prevent the spread of vesicular exanthema, but said chief may also require the processing of such swine in a manner approved by him if he finds such processing is necessary to prevent the spread of said disease.

(2) No swine products shall be moved interstate from any quarantined area specified in § 76.26 except to an establishment specifically approved for the purpose by the chief of the bureau, for processing in a manner approved by said chief as adequate to prevent the spread of said disease:

Provided, however, That the following may be moved interstate from a quarantined area without regard to the foregoing restrictions, but under such conditions as may be prescribed by the chief of the bureau to prevent the spread of vesicular exanthema: (i) Swine products identified by warehouse receipts or other information satisfactory to said chief, as having been derived from swine that were slaughtered prior to July 25, 1952; (ii) swine products which have been processed in the course of normal establishment procedures in a manner approved by said chief as adequate to prevent the spread of vesicular exanthema; (iii) swine products derived from swine which (a) were moved into the quarantined area from a point outside the quarantined areas specified in § 76.26 directly to a clean stockyard and (b) were slaughtered, immediately upon their removal from such stockyard, at an establishment specifically approved for the purpose by said chief; (iv) swine products derived from swine which were moved into the quarantined area from a point outside the quarantined areas specified in § 76.26 directly to a slaughtering establishment and there slaughtered immediately upon arrival, under conditions approved by said chief. The chief of the bureau may authorize the movement of swine and swine products not otherwise authorized by this section under such conditions as he may prescribe to prevent the spread of vesicular exanthema. The chief of the bureau may require that swine and swine products which have been exposed to or have been affected with vesicular exanthema, and which are moved interstate under this section from any quarantined area to an approved establishment for slaughter and processing or for processing, as the case may be, shall be moved under bureau seal or accompanied by a representative of the bureau.

(3) Swine and swine products in transit between points outside the quarantined areas specified in § 76.26 through any such quarantined area shall not be deemed to be moved from the quarantined area under this section.

(b) *Through a Quarantined Area.* No swine or swine products which are moved interstate in transit between points outside the quarantined areas specified in § 76.26 through any such quarantined area shall be unloaded in any such quarantined area unless all facilities to be used therein in connection with the unloading have been approved for such purpose by the bureau and have been cleaned and disinfected before such use in a manner approved by the bureau and under the supervision of a person authorized for the purpose by the bureau.

§ 76.29. Disinfection of Facilities. Railroad cars, trucks, boats, and all other facilities, including facilities for feeding, watering, and resting swine, which are used in connection with the interstate movement of swine or swine products from a quarantined area specified in § 76.26 shall be thoroughly cleaned and disinfected immediately after each such use. Sodium hydroxide (lye) at the rate of 13 ounces to five gallons of water, or sodium carbonate (soda ash) at the rate of one pound to three gallons of water, or sal soda at the rate of 13½ ounces to a gallon of water, shall be used in such disinfection.

Effective date. This order shall become effective upon issuance.

This order clarifies and makes more stringent requirements found in § 76.29 (formerly § 76.13) relative to the use of specified products for disinfecting certain facilities subject to the regulations in this subpart. This change is deemed necessary to prevent the spread of vesicular exanthema, a communicable disease of swine, and therefore must be made effective immediately in the public interest. This order also redesignates the section numbers in the Code of Federal Regulations assigned to the notice and quarantine and regulations relating to vesicular exanthema and makes a change in paragraphing in § 76.28 (formerly § 76.12). These are formal changes which do not affect the rights or obligations of any persons subject to such notice, quarantine, and regulations. Accordingly, under Section 4 of the Administrative Procedure Act (5 U. S. C. 1003) it is found upon good cause that notice and other public procedure with respect to this order are impracticable, unnecessary, and contrary to the public interest and good cause is found for making this order effective less than 30 days after publication hereof in the Federal Register.

(Secs. 1 and 3, 33 Stat. 1264, 1265, as amended, 21 U. S. C. 123 and 125; Secs. 1 and 2, 32 Stat. 791, 792, as amended, 21 U. S. C. 111 and 120; Sec. 7, 23 Stat. 32, as amended, 21 U. S. C. 117.)

Done at Washington, D. C., this 13th day of November, 1952.

K. T. HUTCHINSON
Acting Secretary of Agriculture

EXHIBIT NO. 17

ACTION BY OTHER STATES, GARBAGE-COOKING LEGISLATION AND REGULATIONS[1]

State	*Status*
Arizona	Bill prepared
California	Bill introduced
Colorado	Defeated in legislature
Connecticut	Bill introduced soon
Florida	State regulations
Georgia	Bill passed and signed
Idaho	Bill introduced
Illinois	State regulations 1/1/53—4 insp.
Indiana	Bill introduced
Iowa	Bill passed and signed (1953)
Kansas	Bill introduced
Louisiana	State regulations effective 11/15/52
Maine	Bill introduced
Maryland	State regulations effective 3/9/53
Massachusetts	Defeated in legislature
Michigan	Bill introduced
Minnesota	Bill introduced
Missouri	Bill introduced
Montana	Bill passed and signed (1953)
Nebraska	Bill passed and signed (1952)
Nevada	State regulations April 1, 1953
New Hampshire	Bill introduced
New Jersey	Quarantine regulations (1952)
New Mexico	Bill introduced
New York	Bill prepared
North Carolina	Bill prepared
North Dakota	Killed in legislative committee
Ohio	Bill introduced
Oklahoma	Bill introduced
Oregon	Bill introduced
Pennsylvania	Bill prepared
Rhode Island	Bill introduced
South Carolina	Bill prepared
South Dakota	Passed legislature (1953)
Tennessee	Bill prepared
Texas	Bill prepared
Utah	Bill introduced
Washington	Bill passed and signed (1953)
Wisconsin	Bill introduced
Wyoming	Bill passed and signed (1953)
Hawaii	In effect a number of years
Canada	In effect a number of years
England	In effect a number of years

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[1] As of March 1, 1953. Based upon information from Dr. Mulhern, B. A. I., U. S. D. A.

EXHIBIT NO. 18

ACTION BY FLORIDA OFFICIALS

STATE LIVESTOCK SANITARY BOARD OF FLORIDA

Regulations of the State Livestock Sanitary Board of Florida adopted at a special meeting July 23, 1952, as modified August 7, 1952, are hereby further modified as follows, insofar as the same relate to the importation of meat or meat products containing pork:

(1) All boneless pork or pork products in hermetically sealed cans may be imported into the State for sale at any wholesale or retail market in the State.

(2) Frozen pork may enter the State in sealed railroad cars or sealed trucks from bonded warehouses within the United States, except the State of California, when accompanied by proper certificates of a representative of the U. S. Bureau of Animal Industry that such pork was slaughtered under U. S. Bureau of Animal Industry inspection prior to April 1, 1952, and such pork may be sold either fresh or cured within the State of Florida, provided such products are consigned to establishments operating under state or federal inspection.

This fourteenth day of August, A. D. 1952.

State Livestock Sanitary Board of Florida
John H. Turner, Vice Chairman

Attest:
C. L. Campbell, D.V.M.
Acting State Veterinarian

EXHIBIT NO. 19

ACTION BY GEORGIA LEGISLATURE

AN ACT

To prohibit the feeding of garbage to animals unless such garbage has been processed in such manner as to render the same free of any infectious or contagious disease which might affect domestic animals or human beings; to authorize the Commissioner of Agriculture to promulgate rules and regulations prescribing the manner for processing garbage; to require persons feeding garbage to animals to obtain a license from the Commissioner of Agriculture; to provide for rules and regulations to be established by the Commissioner of Agriculture regarding the collection, transportation, distribution and processing of garbage; to provide for revocation or suspension of licenses issued by the Commissioner of Agriculture pursuant to this Act upon notice and hearing; to define terms used in this Act; to provide administrative relief to any person affected by this Act and to require the exhaustion of same; to provide a penalty for violation of this Act; to prescribe sanitary standards for rendering plants and to prohibit the operation of same unless such standards are complied with; to require operators of rendering plants to obtain a license from the Commissioner of Agriculture before operating same; to provide for inspection of rendering plants by the Commissioner of Agriculture and empower the Commissioner to promulgate rules and regulations concerning the collection, transportation, distribution and processing of the carcasses of dead domestic animals or packing house refuse; to empower the Commissioner of Agriculture to establish quarantine lines or areas necessary for the protection of the livestock of this State from any contagious and infectious disease, to prohibit the conducting of experimental or research work with live virus or any disease vector in this State or the manufacture or distribution of same except by permit issued by the Commissioner of Agriculture; to provide penalties for the violation of any quarantine imposed pursuant to this Act; to empower the Commissioner of Agriculture in cooperation with the U. S. Department of Agriculture to take steps necessary to eradicate contagious and infectious diseases and to promulgate rules and regulations regarding such eradication program; to authorize the payment of indemnities for livestock destroyed in eradicating contagious or infectious diseases; to authorize the transfer of funds by the Governor in order to make funds available for the payment of such indemnities; to repeal conflicting laws and for other purposes.

Be it enacted by the General Assembly of Georgia and it is hereby enacted by authority of the same:

SECTION 1.

Policy and purpose of this Act. Because of the existing and increasing possibility of the occurrences of highly contagious and infectious diseases in the livestock of this State which threaten to destroy the same, and because certain known agents and vectors are instrumental in the spread of certain highly contagious and infectious diseases in livestock, it is hereby found and declared to be necessary (a) to regulate the feeding of garbage; (b) to regulate the rendering of the carcasses of dead domestic animals; (c) to protect areas of this State free of disease by quarantine against the introduction of such diseases; (d) to quarantine infected areas against the spread of such diseases therefrom; and (e) to undertake to eradicate, control, suppress and prevent such contagious and infectious diseases and make provision therefor.

Part One
Feeding of Garbage

SECTION 2

Garbage feeding prohibited unless sterilized. It shall be unlawful for any person, firm, partnership or corporation (including municipalities and counties) to feed garbage to animals unless such garbage has been heated, cooked, treated or processed under such temperature, pressure, process or method, and for such a period of time as is necessary to render the same free of any infectious or contagious disease which might either affect the domestic animals of this State or the citizens of this State. The Commissioner of Agriculture is authorized to promulgate by rules and regulations the method of heating, cooking, treating or processing and to prescribe the temperature and time for such heating, cooking, treating and processing as may be determined by scientific research; provided, however, that these requirements shall not apply to an individual who feeds his own animals only the garbage from his own household.

SECTION 3

Licensing of feeders of garbage. On and after the passage of this act, no person, firm, partnership or corporation shall feed garbage without first having applied for and obtained a license from the Commissioner of Agriculture. Each license shall expire as of March 1st of each year and each application for license must be accompanied by a license fee of five dollars ($5.00); provided, however, this requirement shall not apply to an individual who feeds to his own animals only garbage obtained from his own household.

SECTION 4

Requirement regarding the collection, transportation and distribution of garbage. Every licensed feeder of garbage shall keep and furnish the Commissioner of Agriculture such information as he may by rule and regulation require regarding the collection, transportation, distribution and processing of garbage, and further such licensee shall be required to keep and maintain sanitary at all times his vehicles used in the collection, transportation and distribution of garbage under such rules and regulations as may be required. The Commissioner of Agriculture is authorized to promulgate such other rules and regulations as may be necessary to effecutate the purpose of this act.

SECTION 5

License revocation. Every licensed feeder of garbage who shall violate the laws of this State or the rules and regulations promulgated by the Commissioner of Agriculture pursuant thereto upon a notice and hearing shall have his license revoked, canceled, or suspended.

SECTION 6

Definition of garbage. The word "garbage" as used in this Act shall mean all refuse matter, animal or vegetable; by-products of a restaurant, kitchen or slaughter house; and shall include every refuse accumulation of animal, fruit or vegetable matter, liquid or otherwise. The word "garbage" shall also include the word "swill" as commonly used.

SECTION 7

Administrative relief. Any person affected by Part One of this Act or by any rule or regulation adopted pursuant thereto shall have, and shall be required to exhaust, the administrative remedies as provided by Section 8 of the Act of the General Assembly dealing with livestock dealers and brokers, Georgia Laws, pp. 184, 186.

SECTION 8

Penalty provided for violation. Any person, firm, partnership or corporation violating the provisions of Part One of this Act or any rule or regulations made pursuant thereto shall upon conviction thereof be fined One Thousand Dollars ($1,000.00) or imprisoned as for a misdemeanor.

Part Two
Rendering and Disposing of Dead Animals

SECTION 9

Definition of rendering or disposal plant. The term "rendering plant" as used in this Act shall mean a place of business or location or plant where the carcasses of domestic animals or packing house refuse or other refuse is purchased, received or unloaded and where such carcasses or refuse are processed for the purpose of obtaining the hide, skin, grease, residue or any other by-product from said animals or refuse in any way whatsoever. The term "carcasses of domestic animals" means all or any part or portion of any dead domestic animal not slaughtered for human consumption.

SECTION 10

Rendering plants prohibited unless sanitary. It shall be unlawful for any person, firm, partnership or corporation to operate a rendering plant unless, the rendering plant, and buildings used in connection therewith (a) are constructed so that the floors of all such buildings are of concrete or other impervious material; (b) have adequate sanitary drainage and are so constructed and maintained that no unsterile liquid or other matter is permitted to escape openly therefrom; (c) are so maintained and operated and conducted as to be clean and sanitary; and (d) unless all vehicles used in the transportation of such carcasses or refuse on the public highways are of such construction as to prevent any seepage or residue escaping therefrom.

SECTION 11

Penalty provided for violation. Any person, firm, partnership or corporation violating the provisions of Part Two of this Act or any rule or regulations made pursuant thereto shall upon conviction thereof be fined One Thousand Dollars ($1,000.00) or imprisoned as for a misdemeanor.

SECTION 12

Licensing of rendering plants. On and after the passage of this Act, it shall be unlawful for any person, firm, partnership or corporation to engage in the business of operating a rendering plant without first having applied for and obtained a license from the Commissioner of Agriculture. Each license shall expire on March 1st of each year and each application for a license must be accompanied by a license fee of Five Dollars ($5.00).

SECTION 13

Requirement regarding the collection, transportation of refuse and dead carcasses. Every rendering plant shall be subject at all times to inspection by the Commissioner of Agriculture, and each such rendering plant shall keep and furnish the Commissioner of Agriculture such information as he may by rule or regulation require concerning the collection, transportation, distribution and processing of the carcasses of dead domestic animals or packing house refuse, and further shall keep and maintain sanitary at all times his vehicles used in the collection, transportation and distribution of dead domestic animals and packing house refuse. The Commissioner of Agriculture is authorized to promulgate such other rules and regulations as may be necessary to effectuate the purpose of this Act.

SECTION 14

License revocation. Every licensed rendering plant who shall violate the laws of this State or the rules and regulations promulgated by the Commissioner of Agriculture pursuant thereto upon a notice and hearing shall have his license revoked, cancelled or suspended.

SECTION 15

Administrative relief. Any person affected by Part Two of this Act or by any rule or regulation adopted pursuant thereto shall have, and shall be required to exhaust, the administrative remedies as provided by Section 8 of the Act of the General Assembly dealing with livestock dealers and brokers, Georgia Laws 1952, pp. 184, 186.

Part Three

Quarantine for Protection of Livestock

SECTION 16

Protected area quarantined against introduction of disease. In addition to livestock quarantined and inspection duties hereinbefore imposed by law, the Commissioner of Agriculture shall establish quarantine lines against the introduction of any animals; any animal carcasses, or parts thereof; any biological products or preparations, or any live viruses or other disease vectors, when in his judgment such a quarantine is necessary for the protection of the livestock of this State from any contagious and infectious disease. The Commissioner of Agriculture is authorized to make such rules and regulations as he may deem necessary to prevent, suppress, control and eradicate such contagious and infectious diseases. The Commissioner of Agriculture may condition the movement of those animals or products (against which quarantine is imposed) past quarantine lines when, after inspection, he has been satisfied that such movement originating from without quarantined area coming past the quarantined lines into the protected area is free of disease or is so handled as not to introduce or spread disease. The word "animal" as used in this Section shall mean the domestic animals and livestock of this State, including poultry.

SECTION 17

Infected area quarantined against spread of disease therefrom. The Commissioner of Agriculture or any duly authorized livestock inspector is authorized and required to quarantine any stall, lot, yard, pasture, field, farm, premise, packing house, rendering plant, town, city, militia district, county or any part thereof, or the whole of the State when he shall determine that livestock in such place or places are affected with, exposed to, or suspected of being exposed to a contagious or infectious disease, or with anything which might cause such disease. The Commissioner of Agriculture or livestock inspector shall give written or printed notice of the establishment of such quarantine to the owners or keepers of such livestock and to the proper officers of railroad, steamboat, motor vehicle, or other transportation companies doing business in or through the quarantined territory.

SECTION 18

Regulation of manufacture and use of disease vectors. No experimental or research work except at or under the direction of the State Veterinary College, Georgia Poultry Improvement Association Laboratory, the State College of Agriculture and the State Agricultural Experiment Stations shall be carried on in this State with any live virus or any other disease vector, nor shall any such virus or disease vector be manufactured or distributed in this State except under permit issued by the Commissioner of Agriculture, conditioned as in his judgment necessary, to prevent spread of such disease. The term "disease vector" shall mean any agent or material which has the power to produce or spread disease. Provided, however, the provisions of this section shall not apply to the State and county health departments, the United States Public Health Service, and accredited medical and dental colleges and universities, and to approved hospitals, approved medical centers, and foundations engaged in medical research, diagnosis or treatment of the diseases of man.

SECTION 19

Penalty for violation of quarantine. Any person, firm, partnership or corporation who shall violate any quarantine provision, rule or regulation established by the Commissioner of Agriculture under the authority of law for the protection of the livestock and domestic animals of this State shall be guilty of a misdemeanor.

SECTION 20

Definition of cattle. The word "cattle" as used in Secs. 62-1001 and 62-1002 of the Code of Georgia of 1933 shall be construed to mean livestock or domestic animals of this State, including poultry.

Part Four

Eradication of Disease—Destruction of Diseased Animals —Payment of Indemnity

SECTION 21

Eradication program authorized. Whenever it is determined by the Commissioner of Agriculture in cooperation with the United States Department of Agriculture that a contagious and infectious disease should be eradicated, the Commissioner of Agriculture is authorized to take whatever steps are necessary to eradicate the disease. Owners, renters or persons in possession of livestock or premises infected with such a disease are required to disinfect the premises and to destroy the cause or causes of the contagious and infectious disease including the destruction of those livestock within the premises, under the supervision and direction of the Commissioner of Agriculture or his duly authorized representative. The cost of destroying the cause or causes of infection of a contagious and infectious disease, which is sought to be eradicated, shall be borne by the owner, renter, or person in possession of the infected and quarantined premises; except, however, when budget conditions permit or when federal matching funds are available, the Commissioner of Agriculture may participate in the cost of eradication and is authorized to expend such funds as are available.

SECTION 22

Payment of indemnities authorized. The Commissioner of Agriculture is authorized, in cooperation with the United States Department of Agriculture in the eradication of any infectious or contagious disease, to indemnify the owner of livestock destroyed in eradicating the disease upon such basis and appraisal as the Federal Government prescribes, but in no event shall the State pay more than one-half of the indemnity and cost incident to the eradication; provided, however, that in the case of public stockyards, meat packing establishments, slaughter houses, community sales and licensed garbage feeders, the State shall not pay in participation with the United States Department of Agriculture more than one-third of such cost; provided further, that the Commissioner of Agriculture may, if in any case he finds the feeding of garbage to be a source of such infection, make indemnity payments inapplicable to garbage feeders; provided further still, that any person, firm, partnership or corporation who shall violate any quarantine law or rule and regulation thereunder shall be ineligible for indemnity.

SECTION 23

Transfer of funds authorized. Whenever a program of eradication of a contagious and infectious disease is supported by the payment of federal funds for such eradication contingent upon state participation, and whenever funds are not available sufficient for the purpose of matching the available federal funds, the Governor may transfer from any available funds in the State Treasury such sum of money as may be necessary to meet such emergency, and said monies so transferred shall be repaid to the fund from which transferred when monies become available for that purpose by a legislative appropriation or otherwise.

Part Five
Miscellaneous Provisions

SECTION 24

Provisions of this Act severable. Should any provision, clause, paragraph, section or part or parts of this Act be held invalid by any court, it is hereby declared to be the legislative intent that the provisions of this Act shall be severable and the remainder of this Act shall be in full force and effect as though such clause, paragraph, section or part or parts had not been included herein.

SECTION 25

A copy of all rules and regulations issued pursuant to the provision of this Act shall be furnished each member of the General Assembly, as issued, with a view to making any necessary amendments to this Act at the November 1953 Session.

SECTION 26

Nothing in this Act shall repeal or be construed to be in conflict with the Act of 1939 (Ga. Laws) known as the Hog Cholera Act, relating to the sale, use, distribution and vaccination of hogs with serum and virus by County Agents, Vocational Teachers, Trained Laymen, Veterinarians, or by a Farmer himself, etc. in the prevention of hog cholera.

SECTION 27

Conflicting laws repealed. All laws and parts of laws insofar as they conflict with this Act are hereby repealed.

EXHIBIT NO. 19a

ACTION BY GEORGIA OFFICIALS

License Form Required for Garbage Feeder, Including Agreement to Cook Garbage, Prior to Feeding, at a Temperature of 212 Degrees Fahrenheit for 30 Minutes or Longer

(Exhibit A)

GEORGIA DEPARTMENT OF AGRICULTURE
VETERINARY DIVISION
ATLANTA, GEORGIA

APPLICATION FOR LICENSE TO ENGAGE IN GARBAGE FEEDING OF SWINE

Georgia Department of Agriculture
Veterinary Division
Atlanta, Georgia

Gentlemen:

I, hereby, make application for license to engage in garbage feeding as required by the Georgia laws, in compliance with the rules and regulations promulgated by the Commissioner of Agriculture:

Name of applicant________________________________
Address of applicant______________________________
Location of feeding lot____________________________
County__________Maximum number of swine to be fed______
Territory covered in collecting of garbage:
Name of municipalities or counties____________________
____
Garbage collected from:
Hotels________, residences ________, restaurants________,
Municipalities ________, other places________.
Garbage collected from:
Army and Navy installations__________________________
Address ____
Number of vehicles engaged in the collecting of garbage_____
Approximate tonnage collected daily___________________
____Wet steaming or boiling in open vat, gallon capacity____
____Dry steam or boiling in jacketed kettle, gallon cap.____
____Steaming in pressure cylinder, gallon capacity________
____Steam boiler, horse power_______, gallon capacity____
____Direct heating over open fire, gallon capacity________

I, hereby, certify that I have facilities for cooking garbage as indicated and checked above.

I will, before feeding garbage to swine, see that it has been heated to 212 degrees Fahrenheit and held at such temperature 30 minutes or longer by one of the methods enumerated above and I will follow other rules and regulations regarding the feeding of garbage as promulgated from time to time.

Signature ____________________________
Date ________________________________

Witness:
Sworn to before me this ____________day of
____________________, 1953.
__________ ______________________________________
Notary Public

EXHIBIT NO. 20

ACTION BY ILLINOIS OFFICIALS

RULES AND REGULATIONS[1] REQUIRING COOKING OF GARBAGE

Pursuant to the provisions of "An act to prevent the spread of contagious and infectious diseases among swine," approved June 21, 1895, and in order to prevent the introduction into this State of swine which it has reason to believe are infected with contagious or infectious diseases and to prevent, suppress or extirpate the occurrence of contagious or infectious diseases among swine within this State and to protect the health of swine in the State of Illinois from such contagious and infectious diseases, the Department of Agriculture, State of Illinois, hereby promulgates the following rules and regulations:

Rule No. 1. The following enumerated rules and regulations shall be in full force and effect January 1, 1953;

Rule No. 2. *The feeding of garbage to swine by any person, firm, partnership or corporation is prohibited unless such garbage has been heated* to a temperature of 212 degrees Fahrenheit for a period of thirty (30) minutes or more by one or more of the methods hereinafter enumerated; provided, however, that this regulation shall not apply to an individual who feeds to his own swine only the garbage obtained from his own household;

Rule No. 3. Garbage to be fed to swine located within the State of Illinois shall be cooked or heated as hereinabove provided by one or more of the following methods:

(a) Wet steaming or boiling in open vat;
(b) Dry steaming or boiling in a jacketed kettle;
(c) Steaming in a pressure cylinder;
(d) Steam boilers;
(e) Direct heating over an open fire.

The methods of cooking garbage hereinabove enumerated refers to the methods enumerated and discussed in a bulletin issued by the United States Department of Agriculture and the Federal Security Agency, dated October, 1952, entitled "Equipment for the heat-treatment of garbage to be used for hog feed" attached hereto and by reference incorporated herein.

Rule No. 4. Prior to the feeding of garbage to any swine located within the State of Illinois the owner or feeder, as the case may be, shall first obtain a permit from the Division of Livestock Industry, Department of Agriculture, State of Illinois, and said permit shall be made on an application directed to said Division on forms supplied by it.

Rule No. 5. Prior to the issuance of such permit the applicant must certify to the Division of Livestock Industry that he or it has facilities for cooking garbage in one or more of the methods hereinabove enumerated.

Dated and filed with the Secretary of State this *8th* day of December, A. D. 1952.

____
Director

DEFINITION OF GARBAGE

Pursuant to the provisions of "An act to prevent the spread of contagious and infectious diseases among swine" approved June 21, 1895, and in order to prevent the introduction into this state of swine which it has reason to believe are infected with contagious or infectious diseases and to prevent, suppress or extirpate the occurrence of contagious or infectious diseases among swine within this state and to protect the health of swine in the State of Illinois from such contagious and infectious diseases, the Department of Agriculture, State of Illinois, hereby promulgates the following rules and regulations:

Rule No. 1.a. Garbage as used in this rule and regulation shall mean all refuse matter, animal or vegetable, and shall include all waste material, by-products of a kitchen, restaurant, or slaughter house, every refuse accumulation of animal, fruit or vegetable matter, liquid or otherwise.

Dated and filed with the Secretary of State this 10th day of January, A.D., 1953.

____
Director

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[1] These rules and regulations were promulgated and published by the Department of Agriculture under the provisions of paragraph 9a, Chapter 8, Illinois Revised Stats. (1951).

EXHIBIT NO. 21

ACTION BY IOWA LEGISLATURE

S.F. 258

AN ACT

To make it unlawful to feed garbage to animals except as regulated by the Department of Agriculture, to provide for the licensing of garbage processing and penalties for the violation of this act.

Be it enacted by the General Assembly of the State of Iowa:

Section 1. Definitions: For the purposes of this Act, the following words shall have the meaning ascribed to them in this section:

1. "Department" shall mean the department of agriculture, and wherever said department is required or authorized to do an act, it shall be construed as authorizing performance by a regular assistant or a duly authorized agent of said department.
2. "Secretary" shall mean the secretary of agriculture.
3. "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking, and consumption of foods including animal carcasses or parts thereof, and shall include all waste material, by-products of a kitchen, restaurant, stockyards, hotel, or slaughterhouse, every refuse accumulation of animal, fruit, or vegetable matter, liquids or otherwise.

Sec. 2. It shall be unlawful for any person, firm, partnership, or corporation to feed garbage to animals unless such garbage has been heated to a temperature of two hundred twelve degrees Fahrenheit for thirty minutes, or other acceptable method, as provided by rules and regulations promulgated by the department, provided this requirement shall not apply to an individual who feeds to his own animals only the garbage obtained from his own household.

Sec. 3. Before any person shall process any public or commercial garbage for swine, application for a license shall be made to the department setting forth the name and address of the applicant's proposed place of business, and the method used to process such garbage as outlined in section two.

On receipt of such application, the secretary or his authorized agent shall at once inspect the premises on which the applicant proposes to conduct such business. If the inspector finds that said building complies with the requirements of this chapter, and with the rules of the department, and that the applicant is a responsible and suitable person, he shall so certify in writing to the department.

On receipt of such certificate, the department shall issue a license to said applicant to conduct such business at the place specified until the first day of September following date of issue.

The license fee for each processing plant shall be fifty dollars, except that the first license fee may be prorated on a monthly basis as prescribed by the department.

Sec. 4. Any person, firm, partnership, or corporation violating the provisions of this Act shall, upon conviction thereof, be fined not less than one hundred dollars and not to exceed five hundred dollars. Each day the provisions of section two of this Act, or any rule or regulation made pursuant thereto, is violated shall be a separate offense.

Sec. 5. This act, being deemed of immediate importance, *shall take effect* and be in full force on *June 1, 1953* from and after its passage and publication in The Sioux County Capital, a newspaper published at Orange City, Iowa, and in the Estherville Daily News, a newspaper published at Estherville, Iowa.

Leo Elthon
President of the Senate
W. S. Lynes
Speaker of the House

I hereby certify that this Bill originated in the Senate and is known as Senate File 258, Fifty-fifth General Assembly.

Carroll A. Lane
Secretary of the Senate

Approved_______________, 1953
Wm. S. Beardsley
Governor

EXHIBIT NO. 22

ACTION BY KANSAS OFFICIALS

Office of the
LIVESTOCK SANITARY COMMISSIONER
Topeka

September 2, 1952

Article 7. Garbage Fed Swine

9-7-1. Registration of Garbage Feeders. Any person who collects garbage, or packing house refuse, from sources other than on his own premises, and feeds such garbage or packing house refuse to swine, shall be required to register with the Livestock Sanitary Commissioner of Kansas, on a form provided by the Commissioner. Such registrants shall give their residence address, the address or location of their feeding lots, the number of hogs in such lots at the time of registration, and the approximate highest number of hogs fed by him during the preceding twelve months. All registrations shall expire June 30th of even numbered years. (Authorized by Section 47-610, G.S. Kans., 1949; effective September 2, 1952.)

9-7-2. Movement or Sale Garbage Fed Swine. It shall be unlawful to move or sell any swine which have been fed garbage or packing house refuse, except with a permit from Livestock Sanitary Commissioner approving such movement or sale. (Authorized by Section 47-610, G.S. Kans., 1949; effective September 2, 1952.)

9-7-3. Receiving Garbage Fed Swine. It shall be unlawful for any person knowingly to receive from another, swine which have been fed garbage or packing house refuse, without the required permit from the Livestock Sanitary Commissioner. (Authorized by Section 47-106, G.S. Kans., 1949; effective September 2, 1952.)

9-7-4. Destruction of Diseased Swine: Indemnity. Swine which have been fed garbage or packing house refuse, and which develop any infectious or contagious disease, shall not qualify the owner thereof for indemnity payments; where such disease develops, compulsory slaughter or other disposal may be imposed by the Livestock Sanitary Commissioner, without the payment of any indemnity to the owner of such swine. (Authorized by Section 47-610, G.S. Kans., 1949; effective September 2, 1952.)

EXHIBIT NO. 23

ACTION BY LOUISIANA OFFICIALS

LOUISIANA DEPARTMENT OF AGRICULTURE AND IMMIGRATION, LIVESTOCK SANITARY BOARD

Under the authority vested in the following sections:

2095. Power to deal with contagious diseases of animals.

The State Livestock Sanitary Board shall have plenary power to deal with all contagious and infectious diseases of animals as in the opinion of the board may be prevented, controlled, or eradicated, and with full power to make, promulgate and enforce such rules and regulations as in the judgment of the board may be necessary to control, eradicate, and prevent the introduction of Texas or tick fever and the fever-carrying tick (Margaropus Annulatus) and all other diseases of animals.

(Source: Acts 1908, No. 274, 5.)

2096. Violation; interference with officer of board; penalty.

Whoever violates any provision of this part or interferes with any duly appointed officer of the State Livestock Sanitary Board, shall be fined not less than ten nor more than five hundred dollars, or in default thereof, imprisoned for not less than thirty days nor more than one year, and shall also be liable to any persons injured for all damages resulting from the violation.

(Source: Acts 1908, No. 274, 6; Acts 1912, No. 211, 1.)

Louisiana promulgated the following regulation to prevent the feeding of raw garbage:

REGULATION

Section 1. Definitions:

(a) Garbage shall include all waste, animal and vegetable, resulting from the handling, preparation, cooking, and consumption of foods in all public and private establishments and residences, and including offal and carcasses of dead animals.

(b) Commercial Garbage Feeder is a person, partnership, corporation, institution, or other entity where garbage is obtained elsewhere than on the premises where fed to swine. This shall include all State and private institutions feeding garbage from any source to swine.

Section 2.

Effective this day, November 15, 1952, all commercial garbage feeding operations located in the State of Louisiana are hereby quarantined.

Section 3. Permits.

(a) Operating Permit. On or before February 15, 1953 all commercial garbage operators must secure from the Louisiana Livestock Sanitary Board an operator's permit. Any feeder desiring to obtain a permit to feed garbage to swine shall make written application therefor to the Livestock Sanitary Board. Upon determination that any feeder having a permit issued under this regulation, or who has applied for a permit hereunder, has violated or failed to comply with any of the provisions of this regulation, or any rules promulgated thereunder, the Livestock Sanitary Board may revoke such permit or refuse to issue a permit to an applicant therefor. After an operator's permit has been obtained and garbage is being properly processed, the quarantine of the premises will be lifted and shipping permits for movement of swine will not be required unless an emergency occurs.

(b) Shipping Permit. No swine may be removed from these quarantined premises without a permit which must be obtained within twenty-four (24) hours of the time of shipment. A permit can be issued only by an accredited veterinarian who has inspected all swine on the premises and found them disease-free. He must report this inspection to the Livestock Sanitary Board by wire or telephone and must state the destination of the animals involved. Permits will not be required after an operating permit has been issued unless an emergency occurs.

Section 4. Cooking of Garbage.

After February 15, 1953, or earlier if an emergency occurs, it shall be unlawful for any commercial garbage feeder to feed garbage unless such garbage has been heated to the boiling temperature (212° F.) throughout the mass being processed and maintained at this temperature for at least thirty (30) minutes.

This Regulation is issued at the direction of the Louisiana Livestock Sanitary Board.

F. B. Wheeler, D. V. M.
Executive Secretary

EXHIBIT NO. 24

ACTION BY MARYLAND OFFICIALS

MARYLAND STATE BOARD OF AGRICULTURE
LIVESTOCK SANITARY SERVICE

Baltimore 1, Md.

A regulation to prohibit the feeding of untreated garbage to swine, in order to prevent the transmission of viral, bacterial, and parasitic diseases to animals or man.

Section 1—Definitions:

For the purposes of this regulation, the following words shall have the meanings ascribed to them in this section:

(a) "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of foods including animal carcasses or parts thereof.

(b) "Person" means the State, any municipality, political subdivision, institution, public or private corporation, individual, partnership, or other entity.

Section 2—Permit for Feeding Garbage to Swine:

(a) No person shall feed garbage to swine without first securing a permit therefor from the Maryland State Board of Agriculture. Such permits shall be secured 90 days after the effective date of this regulation and shall be renewed on the 1st day of the 7th month of each year.

(b) No permit will be issued for garbage feeding under this regulation in any county or other subdivision in which local regulations to prohibit garbage feeding are in effect.

(c) This regulation shall not apply to any individual farmer who feeds only his own household garbage to swine which are raised for such individual farmer's own use.

Section 3—Application for Permit:

Any person desiring to obtain a permit to feed garbage to swine shall make written application therefor to the Maryland State Board of Agriculture in accordance with the requirements of the Maryland State Board of Agriculture.

Section 4—Revocation of Permits:

Upon determination that any person, having a permit issued under this regulation or who has applied for a permit hereunder, has violated or failed to comply with any of the provisions of this regulation, or any of the rules or regulations promulgated thereunder, the Maryland State Board of Agriculture may revoke such permit or refuse to issue a permit to an applicant therefor.

Section 5—Sanitation:

Premises on which garbage feeding is permitted under this regulation must be equipped with feeding platforms constructed of concrete, wood or other impervious material, or with troughs of such material of sufficient size to accommodate the swine herd. Where feeding on the ground is the practice in operation at the time of the issue of the permit, reasonable consideration will be given to the time required for the installation of the above facilities.

Premises must be free of collections of unused garbage and waste materials. Rat and fly control measures must be practiced as a further means of prevention of the spread of diseases.

Section 6—Cooking or Other Treatment:

All garbage, regardless of previous processing, shall, before being fed to swine, be thoroughly heated to at least 212° F. for at least 30 minutes, unless treated in some other manner which shall be approved in writing by the Maryland State Board of Agriculture as being equally effective for the protection of animal and human health.

Section 7—Inspection and Investigation; Maintenance of Records:

(a) Any authorized representative of the Maryland State Board of Agriculture shall have the power to enter at reasonable times upon any private or public property for the purpose of inspection and investigating conditions relating to the treating of garbage to be fed to swine as required by this regulation.

(b) Any authorized representative of the Maryland State Board of Agriculture may examine any records or memoranda pertaining to the feeding of garbage to swine. The Maryland State Board of Agriculture may require maintenance of records relating to the operation of equipment for and procedure of treating garbage to be fed to swine. Copies of such records shall be submitted to the Maryland State Board of Agriculture on request.

Section 8—Enforcement of Act; Rules and Regulations:

The Maryland State Board of Agriculture is hereby charged with administration and enforcement of the provisions of this regulation and is authorized to make and enforce all rules and regulations which the Maryland State Board of Agriculture may deem necessary to carry out the purposes of the regulation.

Section 9—Penalties:

Any person who shall violate any of the provisions of, or who fails to perform any duty imposed by this regulation shall be guilty of a misdemeanor, and, upon conviction thereof, shall be punished in the manner prescribed by law.

In addition thereto, such person may be enjoined from continuing such violation. Each day upon which such violation occurs shall constitute a separate violation.

Approved by
Maryland State Board of Agriculture
December 19, 1952

EXHIBIT NO. 25

ACTION BY MONTANA LEGISLATURE

MONTANA GARBAGE FEEDING LAW [1]

Introduced by Committee on Stockgrowing and Grazing

A bill for an act entitled: "An act providing for the regulation of the business or industry of treating garbage for feeding to swine or other animals and of feeding garbage to swine or other animals: providing for licensing of 'garbage feeders,' as that term is defined herein; payment of license fees collected hereunder into the General Fund of the State of Montana; promulgation by the Livestock Sanitary Board of reasonable rules and regulations and orders and the scope thereof; empowering representatives of the Livestock Sanitary Board to enter upon private or public property to inspect and investigate certain conditions and empowering said board to require maintenance of certain records; providing for restraint of the operation of any garbage feeder by the Livestock Sanitary Board or its agent, with notice, except where a menace to public or animal health requires immediate and summary abatement; providing for revocation of licenses by the Livestock Sanitary Board or the State Veterinary Surgeon; providing methods of appeal from both restraining orders and revocations and for hearing by the district court; empowering the Livestock Sanitary Board or its agent to administer oaths, subpoena witnesses, and receive evidence in order to carry out the provisions of this act; prescribing a standard for cooking garbage; prohibiting the treating or feeding of garbage removed from or originating on airplanes; exempting from the application of this act persons who feed only their own household garbage to swine or other animals; providing penalties for violation of this act; providing that if any part of this act is adjudged invalid, inoperative, or unconstitutional, such decision shall not affect, impair, or invalidate the remaining portions of this act; providing for the repeal of all acts and parts of acts in conflict herewith; and providing this act shall be in full force and effect from and after its passage and approval."

Be it enacted by the Legislative Assembly of the State of Montana:

Section 1. Definitions When Used in this Act: (a) "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of foods, including animal carcasses or parts thereof. (b) "Person" means the state, any municipality, political subdivision, school district, institution, public or private corporation, individual, partnership, or other entity. (c) "Garbage feeder" means a person who handles, prepares, cooks, or otherwise treats garbage to feed to swine or other animals, as well as a person who feeds garbage to swine or other animals.

Section 2. Licenses. (a) It shall be unlawful for any person to handle, prepare, cook or otherwise treat garbage to feed to swine or other animals, or to feed garbage to swine or other animals, without first securing a license therefor from the Livestock Sanitary Board, provided, however, one license, issued to the entrepreneur, corporation or individual, responsible for a particular garbage feeding enterprise, shall cover all garbage feeders concerned with the enterprise. The license herein provided shall expire on the last day of December of the current year in which it is issued. A license fee of five dollars ($5.00) shall be charged for all licenses issued under the provisions of this Act. All license fees collected shall be paid into the general fund of the State of Montana. (b) This Act shall not apply to any person who feeds only his own household garbage to swine or other animals.

Section 3. Applications for Licenses. Any person desiring to obtain a license to feed garbage to swine or other animals shall make written application therefor to the Livestock Sanitary Board in accordance with the rules, regulations or orders prescribed by said Board applying to such applications.

Section 4. Power and Authority of Livestock Sanitary Board to Promulgate and Enforce Reasonable Rules and Regulations. The Livestock Sanitary Board is hereby charged with administration and enforcement of the provisions of this Act and is hereby authorized and empowered to promulgate and enforce such reasonable rules, regulations or orders as said board may deem necessary or proper for the supervision, control and inspection of persons who handle, prepare, cook, or otherwise treat garbage to feed to swine or other animals or who feed garbage to swine or other animals. Such rules, regulations or orders shall apply to and govern the method of applying for a license, standards and methods of operation, sanitary conditions of premises where garbage is treated for feeding or fed, the control and inspection of any and all equipment used to store, treat, or feed garbage and any and all equipment, including all vehicles, used for the transportation of garbage.

Section 5. Entry of Premises for Inspection; Keeping of Records. (a) Any authorized representative of the Livestock Sanitary Board shall have the power and is hereby authorized to enter at reasonable times upon any private or public property for the purpose of inspecting and investigating conditions relating to the treating of garbage to be fed to swine or other animals or the feeding of garbage to swine or other animals. (b) Any authorized representative of the Livestock Sanitary Board may examine any records or memoranda pertaining to the treatment or feeding of garbage to swine or other animals. The Livestock Sanitary Board may require maintenance of such records as it determines in its discretion to be necessary, relating to the operation of equipment for and procedure of treating or feeding garbage to swine or other animals, and may require copies of such records to be submitted to the said board periodically.

Section 6. Power of Sanitary Board to Restrain Operation of Garbage Feeder. The Livestock Sanitary Board or its authorized agent is hereby authorized and empowered to restrain the operation of any licensed garbage feeder whose operation is carried on in violation of the laws of Montana or the rules, regulations, or orders of the Livestock Sanitary Board, after a hearing held on five (5) days' written notice of such hearing to the licensee. Provided, however, such restraining order may be issued without notice of hearing where, in the discretion of the Livestock Sanitary Board or its agent, the violation constitutes a menace to public or animal health requiring immediate and summary abatement. Such licensee shall have the right of appeal to the district court, upon giving written notice of appeal to the restraining authority within ten (10) days after service of the restraining order, whether such order be made upon hearing or summarily. Such written notice of appeal shall not stay execution of the restraining order when such restraining order is issued without hearing to restrain a menace to public health requiring immediate and summary abatement. Where the restraining order is issued after hearing, the hearing before the district court shall be upon the record, together with any other or additional evidence which may be adduced. Where the order is issued without hearing, the hearing before the district court shall be upon evidence adduced thereat. Where the appeal is from an order issued after hearing, appellant shall pay the costs of the transcript, which must be filed not more than thirty (30) days from the date of filing notice of appeal, provided, however, the court may extend the time for filing the transcript in its discretion. Such cost of transcript shall be paid to such appellant in the same manner as other court costs if such appellant ultimately prevails in such appeal.

Section 7. Power of Sanitary Board to Revoke License of Garbage Feeder. Such licenses to feed garbage to swine or other animals may be revoked, at any time by the Livestock Sanitary Board or the State Veterinary Surgeon when they, or he, shall determine that a person to whom the license is issued has failed to comply with any statute of the State of Montana, or any rules, regulations or orders of the Livestock Sanitary Board, and upon hearing before the revoking authority, after ten (10)

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[1] Approved by Governor, February 20, 1953.

EXHIBIT NO. 24

ACTION BY MARYLAND OFFICIALS

MARYLAND STATE BOARD OF AGRICULTURE
LIVESTOCK SANITARY SERVICE

Baltimore 1, Md.

A regulation to prohibit the feeding of untreated garbage to swine, in order to prevent the transmission of viral, bacterial, and parasitic diseases to animals or man.

Section 1—Definitions:

For the purposes of this regulation, the following words shall have the meanings ascribed to them in this section:

(a) "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of foods including animal carcasses or parts thereof.

(b) "Person" means the State, any municipality, political subdivision, institution, public or private corporation, individual, partnership, or other entity.

Section 2—Permit for Feeding Garbage to Swine:

(a) No person shall feed garbage to swine without first securing a permit therefor from the Maryland State Board of Agriculture. Such permits shall be secured 90 days after the effective date of this regulation and shall be renewed on the 1st day of the 7th month of each year.

(b) No permit will be issued for garbage feeding under this regulation in any county or other subdivision in which local regulations to prohibit garbage feeding are in effect.

(c) This regulation shall not apply to any individual farmer who feeds only his own household garbage to swine which are raised for such individual farmer's own use.

Section 3—Application for Permit:

Any person desiring to obtain a permit to feed garbage to swine shall make written application therefor to the Maryland State Board of Agriculture in accordance with the requirements of the Maryland State Board of Agriculture.

Section 4—Revocation of Permits:

Upon determination that any person, having a permit issued under this regulation or who has applied for a permit hereunder, has violated or failed to comply with any of the provisions of this regulation, or any of the rules or regulations promulgated thereunder, the Maryland State Board of Agriculture may revoke such permit or refuse to issue a permit to an applicant therefor.

Section 5—Sanitation:

Premises on which garbage feeding is permitted under this regulation must be equipped with feeding platforms constructed of concrete, wood or other impervious material, or with troughs of such material of sufficient size to accommodate the swine herd. Where feeding on the ground is the practice in operation at the time of the issue of the permit, reasonable consideration will be given to the time required for the installation of the above facilities.

Premises must be free of collections of unused garbage and waste materials. Rat and fly control measures must be practiced as a further means of prevention of the spread of diseases.

Section 6—Cooking or Other Treatment:

All garbage, regardless of previous processing, shall, before being fed to swine, be thoroughly heated to at least 212° F. for at least 30 minutes, unless treated in some other manner which shall be approved in writing by the Maryland State Board of Agriculture as being equally effective for the protection of animal and human health.

Section 7—Inspection and Investigation; Maintenance of Records:

(a) Any authorized representative of the Maryland State Board of Agriculture shall have the power to enter at reasonable times upon any private or public property for the purpose of inspection and investigating conditions relating to the treating of garbage to be fed to swine as required by this regulation.

(b) Any authorized representative of the Maryland State Board of Agriculture may examine any records or memoranda pertaining to the feeding of garbage to swine. The Maryland State Board of Agriculture may require maintenance of records relating to the operation of equipment for and procedure of treating garbage to be fed to swine. Copies of such records shall be submitted to the Maryland State Board of Agriculture on request.

Section 8—Enforcement of Act; Rules and Regulations:

The Maryland State Board of Agriculture is hereby charged with administration and enforcement of the provisions of this regulation and is authorized to make and enforce all rules and regulations which the Maryland State Board of Agriculture may deem necessary to carry out the purposes of the regulation.

Section 9—Penalties:

Any person who shall violate any of the provisions of, or who fails to perform any duty imposed by this regulation shall be guilty of a misdemeanor, and, upon conviction thereof, shall be punished in the manner prescribed by law.

In addition thereto, such person may be enjoined from continuing such violation. Each day upon which such violation occurs shall constitute a separate violation.

Approved by
Maryland State Board of Agriculture
December 19, 1952

EXHIBIT NO. 25

ACTION BY MONTANA LEGISLATURE

MONTANA GARBAGE FEEDING LAW [1]

Introduced by Committee on Stockgrowing and Grazing

A bill for an act entitled: "An act providing for the regulation of the business or industry of treating garbage for feeding to swine or other animals and of feeding garbage to swine or other animals: providing for licensing of 'garbage feeders,' as that term is defined herein; payment of license fees collected hereunder into the General Fund of the State of Montana; promulgation by the Livestock Sanitary Board of reasonable rules and regulations and orders and the scope thereof; empowering representatives of the Livestock Sanitary Board to enter upon private or public property to inspect and investigate certain conditions and empowering said board to require maintenance of certain records; providing for restraint of the operation of any garbage feeder by the Livestock Sanitary Board or its agent, with notice, except where a menace to public or animal health requires immediate and summary abatement; providing for revocation of licenses by the Livestock Sanitary Board or the State Veterinary Surgeon; providing methods of appeal from both restraining orders and revocations and for hearing by the district court; empowering the Livestock Sanitary Board or its agent to administer oaths, subpoena witnesses, and receive evidence in order to carry out the provisions of this act; prescribing a standard for cooking garbage; prohibiting the treating or feeding of garbage removed from or originating on airplanes; exempting from the application of this act persons who feed only their own household garbage to swine or other animals; providing penalties for violation of this act; providing that if any part of this act is adjudged invalid, inoperative, or unconstitutional, such decision shall not affect, impair, or invalidate the remaining portions of this act; providing for the repeal of all acts and parts of acts in conflict herewith; and providing this act shall be in full force and effect from and after its passage and approval."

Be it enacted by the Legislative Assembly of the
State of Montana:

Section 1. Definitions When Used in this Act: (a) "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of foods, including animal carcasses or parts thereof. (b) "Person" means the state, any municipality, political subdivision, school district, institution, public or private corporation, individual, partnership, or other entity. (c) "Garbage feeder" means a person who handles, prepares, cooks, or otherwise treats garbage to feed to swine or other animals, as well as a person who feeds garbage to swine or other animals.

Section 2. Licenses. (a) It shall be unlawful for any person to handle, prepare, cook or otherwise treat garbage to feed to swine or other animals, or to feed garbage to swine or other animals, without first securing a license therefor from the Livestock Sanitary Board, provided, however, one license, issued to the entrepreneur, corporation or individual, responsible for a particular garbage feeding enterprise, shall cover all garbage feeders concerned with the enterprise. The license herein provided shall expire on the last day of December of the current year in which it is issued. A license fee of five dollars ($5.00) shall be charged for all licenses issued under the provisions of this Act. All license fees collected shall be paid into the general fund of the State of Montana. (b) This Act shall not apply to any person who feeds only his own household garbage to swine or other animals.

Section 3. Applications for Licenses. Any person desiring to obtain a license to feed garbage to swine or other animals shall make written application therefor to the Livestock Sanitary Board in accordance with the rules, regulations or orders prescribed by said Board applying to such applications.

Section 4. Power and Authority of Livestock Sanitary Board to Promulgate and Enforce Reasonable Rules and Regulations. The Livestock Sanitary Board is hereby charged with administration and enforcement of the provisions of this Act and is hereby authorized and empowered to promulgate and enforce such reasonable rules, regulations or orders as said board may deem necessary or proper for the supervision, control and inspection of persons who handle, prepare, cook, or otherwise treat garbage to feed to swine or other animals or who feed garbage to swine or other animals. Such rules, regulations or orders shall apply to and govern the method of applying for a license, standards and methods of operation, sanitary conditions of premises where garbage is treated for feeding or fed, the control and inspection of any and all equipment used to store, treat, or feed garbage and any and all equipment, including all vehicles, used for the transportation of garbage.

Section 5. Entry of Premises for Inspection; Keeping of Records. (a) Any authorized representative of the Livestock Sanitary Board shall have the power and is hereby authorized to enter at reasonable times upon any private or public property for the purpose of inspecting and investigating conditions relating to the treating of garbage to be fed to swine or other animals or the feeding of garbage to swine or other animals. (b) Any authorized representative of the Livestock Sanitary Board may examine any records or memoranda pertaining to the treatment or feeding of garbage to swine or other animals. The Livestock Sanitary Board may require maintenance of such records as it determines in its discretion to be necessary, relating to the operation of equipment for and procedure of treating or feeding garbage to swine or other animals, and may require copies of such records to be submitted to the said board periodically.

Section 6. Power of Sanitary Board to Restrain Operation of Garbage Feeder. The Livestock Sanitary Board or its authorized agent is hereby authorized and empowered to restrain the operation of any licensed garbage feeder whose operation is carried on in violation of the laws of Montana or the rules, regulations, or orders of the Livestock Sanitary Board, after a hearing held on five (5) days' written notice of such hearing to the licensee. Provided, however, such restraining order may be issued without notice of hearing where, in the discretion of the Livestock Sanitary Board or its agent, the violation constitutes a menace to public or animal health requiring immediate and summary abatement. Such licensee shall have the right of appeal to the district court, upon giving written notice of appeal to the restraining authority within ten (10) days after service of the restraining order, whether such order be made upon hearing or summarily. Such written notice of appeal shall not stay execution of the restraining order when such restraining order is issued without hearing to restrain a menace to public health requiring immediate and summary abatement. Where the restraining order is issued after hearing, the hearing before the district court shall be upon the record, together with any other or additional evidence which may be adduced. Where the order is issued without hearing, the hearing before the district court shall be upon evidence adduced thereat. Where the appeal is from an order issued after hearing, appellant shall pay the costs of the transcript, which must be filed not more than thirty (30) days from the date of filing notice of appeal, provided, however, the court may extend the time for filing the transcript in its discretion. Such cost of transcript shall be paid to such appellant in the same manner as other court costs if such appellant ultimately prevails in such appeal.

Section 7. Power of Sanitary Board to Revoke License of Garbage Feeder. Such licenses to feed garbage to swine or other animals may be revoked, at any time by the Livestock Sanitary Board or the State Veterinary Surgeon when they, or he, shall determine that a person to whom the license is issued has failed to comply with any statute of the State of Montana, or any rules, regulations or orders of the Livestock Sanitary Board, and upon hearing before the revoking authority, after ten (10) days' written notice. Such licensee shall have the right of appeal to the district court, upon giving written notice of appeal to the revoking authority within ten (10) days after service of the order of the revoking authority. Service and filing of such notice of appeal shall stay execution of the order. The hearing before the district court shall be upon the record together with any other or additional evidence which may be adduced. Appellant shall pay the costs of the transcript, which must be filed not more than thirty (30) days from the date of filing notice of appeal, provided, however, the court may extend the time for filing the transcript, in its discretion. Such cost of transcript shall be paid to such appellant in the same manner as other court costs if such appellant ultimately prevails in such appeal.

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[1] Approved by Governor, February 20, 1953.

Section 8. Power to Administer Oaths, Subpoena Witnesses, and Receive Evidence. Hearings held under this act, for either revocation of licenses or to restrain operation, shall be held by the Livestock Sanitary Board or its duly authorized agent; and the Livestock Sanitary Board or its agent is hereby authorized to administer oaths, subpoena witnesses, and receive evidence in order to carry out the provisions of this act.

Section 9. Cooking or Other Treatment of Garbage. All garbage, regardless of previous processing, shall, before being fed to swine or other animals, be thoroughly heated to at least 212° F. for at least thirty (30) minutes, unless treated in some other manner which shall be approved in writing by the Livestock Sanitary Board as being equally effective for the protection of public and animal health.

Section 10. Garbage Originating on or Removed From Airplanes Shall Not Be Treated or Fed. No garbage originating on or removed from airplanes landing within the State of Montana shall be treated for feeding or be fed to swine or other animals. The powers granted in Section 5 of this act to representatives of the Livestock Sanitary Board to enter upon private or public property for the purpose of inspecting and investigating conditions relating to the treating of garbage to be fed to swine or other animals or the feeding of garbage to swine or other animals are hereby specifically declared to extend to and include the inspection and investigation of garbage disposal methods employed at airports and all facilities thereon and aircraft.

Section 11. Penalties. Any person who shall violate any of of the provisions of, or who fails to perform any duty imposed by this act, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars ($50.00) nor more than two hundred fifty dollars ($250), or by imprisonment for a term of not more than six (6) months, or by both such fine and imprisonment. In addition thereto, such person may be enjoined from continuing such violation. Each day upon which such violation occurs shall constitute a separate violation.

Section 12. If any clause, sentence, paragraph, section, subdivision, or part of this act shall, for any reason, be adjudged by any court of competent jurisdiction to be invalid, inoperative, or unconstitutional, such decision shall not affect, impair, or invalidate the remaining portions of this act, but shall be confined in its operation to the clause, sentence, paragraph, section, subdivision, or part directly adjudged to be invalid, inoperative, or unconstitutional.

Section 13. All acts or parts of acts in conflict herewith are hereby repealed.

Section 14. This act shall be in full force and effect from and after its passage and approval.

Approved February 20, 1953, by the Governor.

EXHIBIT NO. 26

ACTION BY THE NEBRASKA LEGISLATURE

SIXTY-FOURTH (EXTRAORDINARY) SESSION

LEGISLATIVE BILL NO. 4

FINAL READING

Introduced by O. H. Person of Saunders
Read first time August 27, 1952
Referred to Committee on Public Health and Misc. Subjects
Sent to printer August 27, 1952
Final form sent to printer September 3, 1952

A BILL

For an act relating to animals; to define terms; to make it unlawful to feed garbage to animals except when heated to a prescribed temperature; to provide for the Department of Agriculture and Inspection to promulgate rules and regulations; to provide for exemptions; to provide penalties.

Be it enacted by the people of the State of Nebraska,

Section 1. As used in sections 2 and 3 of this act, garbage shall mean all refuse matter, animal or vegetable, and shall include all waste material, by-products of a kitchen, restaurant, or slaughterhouse, every refuse accumulation of animal, fruit, or vegetable matter, liquid or otherwise.

Sec. 2. It shall be unlawful for any person, firm, partnership, or corporation to feed garbage to animals unless such garbage has been heated to a temperature of 212 degrees Fahrenheit (boiling point); as provided by rules and regulations promulgated by the Department of Agriculture and Inspection; Provided, this requirement shall not apply to an individual who feeds to his own animals only the garbage obtained from his own household.

Sec. 3. Any person, firm, partnership, or corporation violating the provisions of section 2 of this act or any rule or regulation made pursuant thereto shall, upon conviction thereof, be fined not less than one hundred dollars nor more than five hundred dollars. Each day the provisions of Section 2 of this act or any rule or regulation made pursuant thereto is violated shall be a separate offense.

EXHIBIT NO. 27

ANALYTICAL STATEMENT OF ACTION RESULTING FROM NEBRASKA LEGISLATION

STATE OF NEBRASKA
Val Peterson, Governor
LINCOLN 9

October 15, 1952

GENTLEMEN: We are forwarding for your information an analytical statement showing the manner in which indemnities are in the process of being paid by the Department of Agriculture and Inspection on swine found to be afflicted with or exposed to vesicular exanthema, as provided for in a law enacted by a special session of the Legislature this summer.

All hogs found to be afflicted with or exposed to this disease have been processed or destroyed.

Very truly yours,

DEPARTMENT OF AGRICULTURE
AND INSPECTION
(Signed) CLAY WRIGHT, Director

Hog owners	*No. shipped to packers*	*No. sent to rendering*	*Condemned after slaughter*	*Received from packers*	*Received from tankage*	*Total salvage*	*Total appraisals*	*Amount to be paid by federal and state*	*Amount to be paid by state*
Norden Laboratories, Carl J. Norden, Pres., Grand Island	3,282	81	17	$80,102.91	$42.00	$80,144.91	$178,178.88	$98,033.97	$49,016.99
The Corn States Serum Co., Guy H. Williams, Pres., Omaha	3,173	360	28	76,594.27	---	76,594.27	169,941.87	93,347.60	46,673.80
Omaha Feeding Co., Harold Pollack, Pres., Omaha	2,699	15	33	57,856.13	---	57,856.13	119,208.75	61,352.62	30,676.31
City Sanitary Garbage, George G. Derksen, Pres., Lincoln	465	22	4	10,122.02	---	10,122.02	21,002.80	10,880.78	5,440.39
Richard Wiechman, Fremont	107	9	4	2,740.03	---	2,740.03	5,260.08	2,520.05	1,260.03
Pierce Packing Company, Billings, Montana (Alliance)	236	--	15	4,311.29	---	4,311.29	9,600.48	5,289.19	2,644.60
Triangle Feeding Company, Karl N. Soeder, Pres., Omaha	129	2	--	2,897.00	---	2,897.00	5,984.38	3,087.38	1,543.69
D. & M. Feed Lot, O. E. Sterba-W. J. Delunery, Omaha	61	2	--	1,925.00	---	1,925.00	3,643.47	1,718.47	859.24
Ralph O. Taylor, Ames	43	7	--	756.00	---	756.00	1,777.49	1,021.49	510.75
H. H. Homolka, Omaha	14	--	--	247.00	---	247.00	530.00	283.00	141.50
Arden Wilson, Hooper	9	--	--	66.00	---	66.00	315.00	249.00	124.50
James H. Trutna, Wahoo	--	4	--	---	---	---	160.00	160.00	80.00
Henry O. Peterson, Kennard	--	6	--	---	---	---	108.00	108.00	54.00
George McKnight, Florence and Omaha	--	6	--	---	---	---	108.00	108.00	54.00
George Fraggos, Fremont	--	1	--	---	---	---	35.00	35.00	17.50
Total hogs—10,733	10,218	515	101	$237,617.65	$42.00	$237,659.65	$515,854.20	$278,194.55	$139,097.30

EXHIBIT NO. 28

OMAHA GARBAGE IS NOW BEING COOKED

MEMORANDUM

DEPARTMENT OF AGRICULTURE

To: Mr. A. A. Brock, Director
From: Arthur G. Boyd, Chief, Bureau of Animal Industry
Subject: Garbage Processing at Omaha, Nebraska
Place: Sacramento
Date: March 3, 1953

In accordance with your suggestion, I stopped at Omaha, Nebraska, on my return trip from Chicago, Illinois, where I attended meetings of livestock sanitary officials and industry representatives for the purpose of discussing federal revised vesicular exanthema eradication program.

On the morning of February 17th I visited the Central States Products Corporation Plant located at Fourth and Jones Street. There I met Mr. Gordon A. Erickson, a representative of the organization. This plant had formerly been engaged in the manufacture of industrial alcohol. In September, 1952, the legislature of Nebraska in extraordinary session enacted legislation requiring the cooking of garbage effective December 6, 1952. Subsequent to that date the feeding of Omaha city garbage to swine was discontinued and for a while the garbage was emptied into the Missouri River. The latter procedure resulted in much complaint from cities located down stream.

Overtures were made to the Central States Products Corporation to ascertain if they might assist in working out a plan for the dehydration of garbage. Experimental runs were undertaken and at the time of my visit all of the household, hotel and restaurant garbage of the City of Omaha, amounting from 80 to 100 tons a day, was being processed at this plant. The garbage is delivered and dumped on a large concrete surface without charge by Omaha city garbage collection trucks. From this point the garbage is scooped up with a scoop arrangement attached to the front of a tractor onto a composition conveyor belt, which I should judge is about 24 inches wide. The belt moves comparatively slowly past an employee who hand picks from the garbage undesirable materials such as tin cans, bottles, etc. It might be mentioned here that Omaha city garbage is not wrapped in paper.

From the sorting place, the conveyor belt moves onward and upward to where the garbage is dumped into a rather large hasher or grinder. From this point the ground garbage is dumped on a conveyor belt and carried to the charging point where is is dumped into a large cylinder drier. This drier resembles somewhat alfalfa drying machinery, however it was a large affair, about eight feet in diameter and approximately 60 feet long. When in operation, this large cylinder or tube revolves. At the heating end, there are two large gas burners. Within the heating chambers proper the temperature reaches 1200 degrees F. The garbage however, reaches at the hottest point approximately 350 to 375 degrees F. and at the discharge end the temperature of the garbage is 220 degrees F. The processing operation takes about one-half hour. It was of interest to learn, the present plant if used to full capacity could process 300 tons of garbage a day. The finished product is about the color of coffee and consists of small granules and flakes and to me was odorless or possibly a slight sweetish odor.

At the time of my visit, the weather was rather chilly and there was no evidence of a fly problem, nor were there any objectionable odors. Practically all of the operations were carried out in the open excepting for roofing over part of the machinery.

Mr. Erickson advised that they had now reached the peak in operations and that they were just about breaking even financially. He was of the opinion that they had perfected their processing methods to a point that from now on they could operate in the black.

The finished product is being sold as livestock feed under a trade name Feed-All. Copy of the analysis is attached. I was informed that there was some hesitancy for a while on the part of livestock producers to use this feed because it originated from garbage. This attitude is gradually changing and I was told that the product is now being used as part of the ration by swine, beef and poultry producers.

While it is too early to have accumulated much information on actual feed trials, preliminary reports indicate that cattle eat it well and show good gain. Feed-All is being sold in small quantities at $45 a ton bulk, Omaha, however, Mr. Erickson intimated as time went on he felt that this price could be reduced appreciably. He estimated that the output of the Omaha plant could be used as part of the ration fed 25,000 steers.

I might add that Mr. Erickson stated that one of the problems that confronted them in processing garbage was the difficulty involved in handling the high fat content. It seems the fat contributed materially to mechanical difficulty. This was overcome by adding up to 10 percent of ground corn cob.

As you know, one of the problems entailed in processing garbage in the large metropolitan areas of California, is the huge volume that has to be dealt with. It seems to me at this time that the method briefly described above is the most promising one that has come to my attention in use in this Country that might meet the requirements for handling large volumes of garbage in our State.

I believe it well worth while for those interested in garbage disposal and the utilization of the by-products thereof, to make a detailed study of the Omaha method. Incidentally, Mr. Erickson brought up the point that the operation of such plant from a fuel standpoint would probably be less costly in California because of our better gas rates.

Following is a release of the Central-States Products Co. describing their product, *FEED-ALL:*

FEED-ALL

Dehydrated Vegetable and Meat Scraps Made From Sterilized, Processed Garbage

ANALYSIS

Moisture	9.0%
Protein	14.5%
Fat	14.0%
Fibre	13.5%
Sugar	25.0%
Ash	11.0%
Phosphorus	0.6%
Pantothenic acid	6 mg/lb.
Niacin	19 mg/lb.
Choline chloride	530 mg/lb.
Riboflavin	1.5 mg/lb.
Carotene	2400 Int. Units Vit. "A"/lb.

FEEDING RECOMMENDATION

Feed-All is an excellent source of protein, minerals, vitamins and fat, and is highly recommended as an ingredient in animal and poultry rations. It is recommended as a supplement to high protein, low fat meals, such as solvent extracted soy or cottonseed meal and as an extender for animal protein.

Suggested Levels of Feed-all in Total Ration

Swine	15-25%
Beef	10-20%
Poultry	5-15%

This product contains 10 percent or less of cob meal introduced to permit physical handling and grinding of this high fat material.

Manufactured by Central-States Products Corporation, Jones Street at Fourth, Omaha 8, Nebraska.

EXHIBIT NO. 28 (SUPPLEMENT)

OMAHA PROCESS REPORTED ON BY UNIVERSITY OF CALIFORNIA SCIENTISTS

REPORT ON THE DEHYDRATION OF CITY GARBAGE TO PRODUCE ANIMAL FEED AT OMAHA, NEBRASKA

On March 19-21, 1953, Mr. P. H. McGauhey and Dr. Hubert Heitman of the staff of the University of California visited the City of Omaha, the Central States Products Corporation, and others concerned with the dehydration of city garbage to produce animal feed, for the purpose of establishing a basis for estimating the economic feasibility of such a method in California. The following report is based upon personal observations and upon information furnished principally by Mr. Herbert H. Ulrich, Chief Smoke Prevention Engineer, Sanitation Commission, City of Omaha; Mr. Gordon A. Erickson, Plant Manager, Central-States Products Corporation; Mr. John Reynolds, Farm Advisor, Douglas County; Mr. Ken Johnson, Swine Herdsman, Boys Town; Mr. Anton C. Andersen, pure bred swine grower; and Mr. E. A. Trowbridge, Wilson & Co.

Others contributing useful information included Mr. Edwin Woodbridge, City Engineer, Omaha; Professor W. J. Loeffel, Chairman Dept. of Animal Husbandry, University of Nebraska, a nationally known authority on swine; Mr. R. H. Good, Assistant Farm Advisor, Douglas County; and Walter M. Scholes, Omaha Public Power District.

A copy of an information sheet issued by the Omaha Sanitation Commission is appended to this report.

1. SUMMARY

On March 19-21, 1953, representatives of the University of California visited Omaha, Nebraska, to study a project engaged in the dehydration of city garbage to produce animal feed. On the basis of personal observations of the process; information obtained from city officials, representatives of the Central-States Products Corporation, and others; a review of literature; and cost estimates it is concluded that converting garbage to animal feed by dehydration is economically feasible.

Five and one-half months of operation of a converted alcohol plant by the Central-States Products Corporation at Omaha has convinced the operators and representatives of the city that under proper circumstances dehydration should be economically feasible and self sustaining. The circumstances are not presently suitable in Omaha for both historical and technical reasons. The total output of garbage of 60 tons is not sufficient to warrant tying up an appreciable segment of the extensive plant being used; conversion costs have to be written off in too short a period; the converted plant is not the most economical; and some citizen groups are anxious to pursue other refuse disposal plans. As a consequence of the circumstances peculiar to Omaha the plant is to be closed down on May 1, 1953.

In spite of a $2,500 per month subsidy for processing 60 tons of raw garbage per day the company reports no profits at a selling price of $40 to $43.50 per ton of finished product. An analysis of the probable costs of production under the Omaha situation indicates that this is undoubtedly true. It seems probable, however, that in a new plant especially designed for dehydrating garbage there should be a profit of one to two dollars per ton of raw refuse from material sold at $40 to $45 per ton of finished product in cases where the city delivers segregated garbage to the dehydrating plant free of charge. It is interesting to note that dehydrated garbage was valued at $30 to $50 per ton in 1924-26. As a market is developed it should be worth considerably more than 40 to 45 dollars per ton today.

As an animal feed dehydrated garbage cannot be used as the major constituent of a ration.

Central-States Products Corporation makes the following suggested level recommendations for Feed-All in the total ration (Appendix 2):

Swine	15-25%
Beef	10-20%
Poultry	5-15%

No experimental evidence is given to substantiate these recommendations.

A review of the literature would indicate that in swine dehydrated garbage is worth at least the price of grain when fed as 10 percent or less of the ration. With proper supplementation it can be used economically up to 25 percent of the ration. No information on its use for beef cattle was found, though in one brief experiment it was successfully used as 35 percent of the concentrate mixture in dairy cattle (probably about 15-20 percent of the total ration). In sheep in one experiment some value was indicated as 14 percent of the grain mixture.

Experiments with poultry are promising using a degreased product.

It seems fair to conclude that a properly dehydrated garbage when properly used is at least equal in value to grain. As a major constituent of the ration, it is not.

In California swine feeding of garbage, dehydration does not appear to be the answer. An unfavorable grain-hog ratio has encouraged the garbage feeder to feed only garbage with little or no supplement. This can be done with raw garbage economically, and possibly with cooked garbage. In order to feed dehydrated garbage he would have to buy large quantities of grain which has not been an economical procedure in California during the last six months and at many other times.

The possibilities of its use with poultry and other classes of livestock are promising and should be explored. If work now reported in this respect can be duplicated, the dehydration of garbage should be economical where it can be sold for the price of grain or less.

At the present time all evidence indicates that dehydrated garbage can be produced and sold at a cost less than the price of grain.

2. HISTORY AND STATUS OF THE OMAHA GARBAGE DEHYDRATING PROJECT

For a number of years prior to September, 1952, the garbage of the City of Omaha was collected by a private contractor, the Omaha Feeding Company, and fed directly to hogs. In September, 1952, however, a combination of circumstances made the contract inoperative—an outbreak of vesicular exanthema (V.E.) in garbage fed hogs led to a quarantine on the operations of the feeding contractor, and the Nebraska State Legislature passed a law prohibiting the feeding of raw garbage, effective within 90 days. This created an emergency which necessitated the dumping of garbage into the Missouri River—a procedure which caused severe criticism although it has been and is the present practice of most of the Missouri River towns.

It was the opinion of members of the Omaha Sanitation Commission and officials of the Central States Products Corporation, a local producer of alcohol and other grain products, that the garbage could be converted to a desirable feed for livestock by dehydration. Under an arrangement whereby the City of Omaha would deliver garbage to the plant free of charge and subsidize the project at the rate of $2,500 per month for one year while the process was being developed and markets established, the Central States Products Corporation in October, 1952, began drying the entire garbage output of Omaha.

When observed on March 19-21, the plant had been in operation for five and one-half months and was processing daily an average of 60 tons of raw garbage to produce approximately 17 tons per day of feed, which was being offered for sale in bulk at $40 per ton, or in bags at $43.50 per ton. At these prices the corporation was said to be just about breaking even. It was the opinion of representatives of both the city and the corporation that the process should eventually be self-sustaining and profitable. Nevertheless for a number of reasons the project is scheduled for termination on May 1, 1953. The most concrete reasons are largely the result of precipitous action necessitated by the short period between the passage of the act prohibiting feeding of raw garbage to hogs and the date when it became effective. At about that time, and prior to the beginning of the dehydration project, the citizens of Omaha voted a 2-mill levy to provide for a city-wide pickup of garbage and rubbish for disposal by sanitary landfill to replace the former system whereby garbage was collected by the hog feeding contractor and rubbish hauling depended upon private arrangements between the citizen and a hauler. Proponents of the city-wide pickup then became anxious to put the program into practice. To this was added the demand of the corporation for a greater subsidy in order to stay in the garbage dehydration business without economic loss. Several factors would seem to contribute to the reported lack of profits:

1. The tonnage of garbage available in Omaha may be less than the optimum for a dehydration operation in a plant as extensive as that owned by the Central States Products Corporation.
2. In an undertaking essentially experimental in nature, special equipment and plant alterations necessary to convert to dehydration must be written off over a short period.
3. The converted plant is less economical to operate than one specifically designed for the dehydration of garbage.
4. More expense was involved in overcoming "bugs" in the process than was anticipated.
5. Production began of necessity before markets could be adequitely explored.
6. The word "garbage" on the label, as required by the American Feed Control officials, led to some local disinterest in the product.
7. The product being new and in small production was unproved by experiments on livestock under controlled conditions.

3. PRODUCTION OF DEHYDRATED GARBAGE AT OMAHA

The Process. In the process of dehydrating garbage used by the Central States Products Corporation raw refuse is rough picked by hand to remove any tin cans and bottles which appear; then mixed with 10 percent corn cobs and wet ground in a mill with one-inch screen openings from which it emerges as a well-ground cohesive mass having a high moisture content. It is then mixed with material recycled from the dryer, in the proportions of one part wet to four parts dry material, and introduced into a gas-fired rotary kiln (dryer) from which it is discharged about 40 minutes later with a temperature of 200 to 230 degrees F. In this manner a particle of material makes several trips through the dryer and is ultimately reduced in moisture content to about 9 percent.

The portion of dried material not recycled is sent over a drum type magnetic separator to remove ferrous metals, and through a hammermill which pulverizes any glass that may be present. Fans used to transport dried material along the way have the effect of removing some heavy objects such as bottle caps although this is not their design function. Finally the dried material is delivered to a storage hopper from which it may be drawn in bulk or directed through a bagging machine.

The raw garbage going into the process in Omaha has been subjected to about as great a degree of segregation as it is practical to impose on the householder. Only about one-third of a cubic yard of tin cans and bottles appear in a day's run of 60 tons of garbage. Paper is almost absent, although one piece of paper or a single sack to line the garbage can is permitted. It is interesting to note that this degree of segregation is not required by city ordinance but is the result of years of educational and coercive practice by the Omaha Feeding Company operating under an enabling ordinance. In spite of the excellent segregation, however, there are sufficient bottle caps and other objects in the garbage to convince the operators of the project that hand segregation of garbage is impossible.

As operated in Omaha the process does not produce a completely sterile product, although harmful bacteria are presumably killed. Total bacterial counts of 200,000 per gram of dry material are common.

The processed garbage is a finely ground material, dark brown in color, having a pleasant odor and adhering together loosely due to its fat content. On several occasions this fat has caused operational difficulties by producing a cake in the rotary dryer, which eventually lead to a flash-through and serious damage to equipment by fire. Experience with the process during five months of operation has led to a good degree of process refinement such as the addition of corn cobs to take up fat and prevent accumulation of material inside equipment. This represents a "knowhow" on the part of the operators, however, which would presumably have to be acquired at some expense in any venture into garbage dehydration.

The Plant. The plant used in Omaha was built for the production of alcohol but included equipment for dehydrating spent grains. By adding certain elements and rearranging others this dehydrating equipment was successfully converted to drying garbage. Not all of the devices involved worked well but corrective measures had been thought out before the decision to cease production on May 1st.

The layout and operation of the plant may be described as follows: Raw garbage is dumped from collection vehicles onto a paved area. Corn cobs are added to the heap before it is delivered to a hopper by a small tractor equipped with a special bucket and elevator attachment. An operator regulates the flow of garbage from the hopper on to a chain feed table by means of a hand operated gate. As the material moves uniformly along this feed table an operator located in a shed picks off cans and bottles and tosses them into a wheelborrow. Water is sprayed on the garbage as it drops from the feed table to a belt elevator which deposits it in the feed hopper of a grinder driven by a 100 hp motor. From the mill the ground material is moved by a series of screw conveyors to a point where it is dropped into a mixing screw which also receives dry material from another screw conveyor. From the mixing screw cross conveyors, also of the screw type, feed the mixed material into gas-fired, rotary drying kilns. Two of these dryers are 60 feet long and about 7 feet in diameter. The other two are 40 feet long and about 5.5 feet in diameter. From the kilns the dry material is picked up by individual screw conveyors each leading to a cooling fan that discharges the material into the top of a hopper. The hoppers feed the material to a common screw conveyor that terminates in a fan which lifts it to the top of a cyclone separator. This separator serves as a hopper to feed the dry garbage to a screw conveyor which leads to a blower fan that elevates it to hopper. From this hopper some of the dried material is recycled and the rest passed over a magnetic separator and through a hammermill to another hopper from which it may be run through a sacking machine or into a vehicle for transportation in bulk.

As constituted the plant involves excessive conveyors and separators which would be omitted from a specially designed plant having a straight line flow diagram, with a consequent reduction in equipment and power costs.

Production Costs: Although actual production costs are not released by the Central-States Products Corporation they may be estimated with considerable accuracy from data available. The subsidy of $2,500 per month paid by the City of Omaha for the processing of 1,800 tons of raw garbage per month amounts to about $1.40 per ton. Assuming all material is to be sold in bags at $43.50 per ton, the value of each ton of raw garbage can be calculated from the 28 percent yield shown by plant records. This amounts to $12.20 per ton which, with the subsidy of $1.40, establishes the production costs for no profit at $13.60 per ton of raw garbage processed. Such a figure can be taken as the probable cost of production if we accept the corporation's statement that it is just about breaking even at present.

This figure can be checked by a cost analysis based upon data obtained in Omaha. These data include power requirements, power rates, fuel consumption, fuel rates, assessed value of plant, rate of taxation, other utility rates, labor requirements, labor costs, operating schedule, yield of product, plant capacity, selling price, estimated cost of converting plant, estimated cost of special equipment observed, and other pertinent information.

The plant is operated eight hours each working day plus some overtime. Processing 60 tons per day with an operating force of six men entails a labor cost of about one man-hour per ton of material processed. Administrative costs may be estimated from the number of individuals employed, with allowance for the fact that the plant is producing riboflavin and other products as well as dehydrated garbage.

From a detailed cost analysis made in the preparation of this report from data obtained in the field, it is estimated that the cost of production is about $8 per ton exclusive of maintenance and fixed charges.

From a visual inspection of the equipment added and the modifications in plant necessary to convert to garbage dehydra-

Illustration No. 13
DUMPING GARBAGE AT OMAHA PROCESSING PLANT (1953)

Photo courtesy of Central States Products Company, Omaha, Nebraska.

tion it is estimated that about $50,000 was involved, much of which would be lost in any future plant reconversion. Inasmuch as the dehydration project involved a high degree of experimentation, this sum might be capitalized and written off in one year at the rate of $2.30 per ton.

In the Omaha operation $3.30 per ton would represent the capitalized cost of the plant, plant and equipment maintenance costs, selling costs, and profits. Inasmuch as $3.30 might represent about the capitalized and maintenance costs of about a $300,000 plant to process 60 tons of garbage per day, it seems likely that the cost of producing feed from garbage in Omaha is about 45 to 48 dollars per ton of finished product, and that no appreciable profit is being made by the manufacturer at the present time.

Considering all the factors involved, including the need for writing off $50,000 in one year in the Omaha case; and estimating the cost of a 60-ton per day plant designed especially for dehydrating garbage in California at about $250,000 to $300,000, it would seem that a profit of 1 or 2 dollars per ton of raw garbage processed might be involved in dehydrated garbage sold at 40 to 45 dollars per ton.

4. VALUE OF DEHYDRATED GARBAGE AS A FEED

One of the factors given by Central-States Corporation for its lack of profit in its process was difficulty in merchandising its product. It was felt that this was largely due to the required use of the word "garbage" on its label. This use was defined by the America Feed Manufacturers Association and not by the State of Nebraska. The dehydrated garbage feed was being sold on the basis of its analysis.

The Product. Two products were being sold at the same price. These were "Feed-All" and "Feed-All-F" and the difference was that the latter contained more crude fat (ether extract) which produced a lower crude protein level. Following are the guaranteed analyses taken from the feed ingredient tags:

	Feed-All, percentage	*Feed-All-F, percentage*
Crude protein, not less than	14.50	13.00
Crude fat, not less than	14.00	15.00
Crude fiber, not more than	13.50	13.50
Ash, not more than	13.00	13.00
Nitrogen Free Extract, not less than	34.00	34.00
Sugars, not less than	25.00	25.00

Ingredients are listed as "dehydrated vegetable and meat scraps from sterilized, processed garbage and corn cob meal."

The corporation had available for distribution a page giving further analysis and feeding recommendations. These were:

	Feed-All
Moisture	9.0%
Phosphorus	0.6%
Pantothenic acid	6 mg. per lb.
Niacin	19 mg. per lb.
Choline Chloride	530 mg. per lb.
Riboflavin	1.5 mg. per lb.
Carotene	2400 I.U. Vitamin "A" per lb.

This sheet stated that "Feed-All is an excellent source of protein, minerals, vitamins and fat, and is highly recommended as an ingredient in animal and poultry rations. It is recommended as a supplement to high protein, low fat meals, such as solvent extract soy or cottonseed meal and as an extender for animal protein." Vitamin analyses were the results of two samples tested by a commercial laboratory. "This product contains 10 percent or less of cob meal introduced to permit physical handling and grinding of this high fat material."

Public Acceptability in the Vicinity of Omaha. In the time the plant has operated almost 3,030 tons of Feed-All have been produced. In spite of the aforementioned difficulty in merchandising, apparently a great deal of the product has been disposed

Illustration No. 14

TRANSFERRING GARBAGE FROM DUMP AREA TO CONVEYOR BELT, OMAHA PROCESSING PLANT (1953)

Photo courtesy of Central-States Products Company, Omaha, Nebraska of. It was learned that the price had been reduced in some instances in order to get the product into use.

The Farm Advisors resident in Omaha were familiar with the product but only knew of a limited number of farms where it was being fed. The Department of Animal Husbandry, University of Nebraska, was familiar with the product but had no experience with it. The reason given was the fact that it was considered to be of minor importance because of quantity produced and other work took precedence.

Two hog farms were visited that were actually feeding the product. One of these was the farm of Anton C. Andersen, located about 10 miles northwest of Omaha. Mr. Andersen at present has a registered Duroc herd of 13 sows. He is unusual in his locality in that he feeds very little corn. His sows receive a ration composed of 60 percent oats, 10 percent Feed-All, and the remainder bakery waste and commercially mixed protein supplements. He reported that his spring litters (then in the process of being farrowed) were his best ever. His fall pigs also receive about 10 percent Feed-All and were of average size for age and in average condition. Mr. Andersen originally began using Feed-All because he felt he needed more fat in his ration. He is satisfied with it but can offer no direct evidence concerning its value. The general condition of his hogs did not indicate that the feed was superior or inferior.

The other farm was that of Boys' Town which has a large herd made up of Berkshires, Durocs and Hampshires—all purebred. The herdsman adds 15-20 percent of Feed-All to coarse ground shelled corn to feed pigs after they weigh about 75 pounds. It was being used as a replacement for corn rather than as a supplement (at the time Feed-All was $10-15 cheaper per ton than corn). The corn-Feed-All mixture was placed in the large compartment of the self feeder, and a commercially mixed protein supplement was placed in the small compartment. The herdsman felt that when fed at this level it was equal in value to corn, pound for pound.

Since it was not possible to visit a farm where definite records were available which would give a definite indication of its value, no further farms were visited.

The farm advisor knew of two farms at some distance where Feed-All was being fed to sows as 4 percent of their ration. These particular farmers felt that this feed enabled them to get a higher conception rate. In view of the lack of controls, it is felt that these statements must be discounted.

The above discussion would indicate that public acceptability of Feed-All is good—*after* it has once been tried.

Central-States Corporation marketed its Feed-All products direct. It was stated that this was done because feed dealers would not touch a feed with the word "garbage" on the label. One feed dealer was contacted and was outspoken concerning the poor quality of dehydrated garbage. This should be expected from a competitor, and of course it is not fair to compare a feed with 13-14½ percent crude protein with one containing 45-60 percent.

The Nutrient Content of Dehydrated Garbage. As outlined previously, up to 10 percent corn cobs was added to the ground raw garbage for technological reasons. The selection of corn cobs, while possibly excellent from an engineering standpoint, is unfortunate from the standpoint of the pig. Corn cobs are not well digested by swine. The addition of cobs changes the analysis of the product so that it will differ from analyses of other garbage products.

In Table 1 are given the analyses of some garbages. The digestible nutrient content of the dehydrated Omaha garbage is calculated using coefficients of digestibility developed by Biddick et al. (1941) at California on dehydrated Los Angeles garbage. No digestion trials have been run directly on Feed-All. In many respects Feed-All is similar to rice bran in analysis.

Feeding Value of Dehydrated Garbage. Since direct tests are not available on Feed-All a discussion of feeding trials found in the literature must be used for this purpose. Though processes will vary, it is likely that the over-all products will be similar.

1. Swine. It has been adequately demonstrated at the California Station (Hughes, 1951) that the inclusion of dried or dehydrated garbages in the ration of swine markedly affects the gain and feed utilization (see Table 2). Dehydrated garbages alone were unsatisfactory, and amounts over 25 percent of the ration usually were uneconomical. English work supports this observation (Woodman and Evans, 1942). Even though the digestible crude protein content was high, inclusion of more than 35 percent of a dried balanced swill affected the rate of gain and feed utilization. This was due in part to a TDN content of less than rice bran (see Table 1).

The Hawaii Agricultural Experiment Station recently reported on the feeding value of sun-dried military garbage (Willett et al., 1948). Some of the fat was extracted leaving a product with a lowered TDN (See Table 1). Results are as follows:

Dried vs. Cooked Garbage
(Willet et al., 1948) †

	Dried garbage	*Cooked garbage*
No. of days	70	70
No. of pigs	4	4
Initial body weights, lbs.	73.6	74.3
Average daily gain, lbs.	0.68	1.44
Feed per cwt. gain, lbs.	532	1,035 *

* 354 if reduced to same moisture content as dried garbage.
† Each pig received one pound of green grass daily.

This work confirms that of the California workers in the poor performance on dried garbage alone.

There is a wealth of information concerning garbage tankage, table scrap meal and processed garbage in the literature prior to 1930.

Weaver (1927) showed with 60-pound pigs on rape pasture that garbage tankage (Pan-American Feed Milling Co., see Table 1) fed as 10 percent of the ration was equal in feeding value to corn pound for pound. It was not as beneficial from a growth standpoint as packing house tankage. In a series of experiments at the Iowa Station, Evvard and Associates (1923) also showed that garbage tankage was not as adequate as a corn balancer as meat meal tankage either in dry lot or on rape pasture. The inadequacy was much more pronounced in dry lot. Further work (Evvard et al., 1925, 1926 a) indicated that when table scrap meal (Pan-American Feed Milling Co.) was fed up to 40 percent of the protein supplement for fattening pigs in dry lot it improved the ration. In seven instances (Evvard et al., 1925) where it was fed in conjunction with an animal source supplement the average daily gains were greater than in the check group fed a protein supplement of tankage alone. In another group of experiments (Evvard, 1926 b) this was not true.

A series of experiments also have been reported from Purdue University on the use of processed garbage (for analyses see Table 1). Processed garbage from Indianapolis produced slower gains than animal tankage (Purdue University, 1927), and the pigs reached market late after the price had fallen. Processed garbage produced faster and cheaper gains when self fed free choice than when mixed and self fed with corn. As the only supplement to corn with growing pigs on pasture it was only equal to corn in value. Degreased, processed garbage (Purdue University, 1930) produced faster gains than the product not degreased, but they were not as economical.

Minkler (1914) at the New Jersey Station reported that a degreased partially dried garbage tankage (dry matter 39 percent) was satisfactory as a portion of a mixed ration.

This work all indicates that dehydrated garbage is equal to grain pound for pound in feeding value when fed as 10 percent of the ration or less. It can be fed up to 25 percent of the ration usually with economical results. Quantities greater than 25 percent are not satisfactory. The feeding value of dehydrated garbage as a supplement in the ration of swine may be greater if it is limited to 40 percent of the protein supplement. The replacement value in this respect has varied from 1 pound of corn and 0.35 pound tankage per pound of table scrap meal down to the replacement of corn, pound for pound.

2. Poultry. Less information is available in other classes of livestock, and poultry. Central-States Corporation stated that in one 56-day experiment with chicks it was indicated that Feed-All replaced cornmeal pound for pound in a balanced diet when limited to 10 percent.

Ayres (1943) describes the preparation of garbage for use as a poultry feed. Using this feed Pierson (1943) reported the results of preliminary work with growing ducks and cockerels. Yeast was added at the ratio of 1 part to 14 parts of processed garbage to correct an apparent thiamin deficiency. Where the processed garbage-yeast mixture made up as much as 45 percent of the ration the feed required per hundred pounds gain varied from an increase up to 7.6 percent to a decrease of 10.4 percent. On a replacement basis the value seemed to lie between $80-120 per ton (Pierson, 1943). The number of birds in this preliminary report does not justify complete confidence in these values.

Further work (Beaumont et al., 1944) has been carried out on the processing procedure, and it is stated that subsequent work has conclusively demonstrated the value in the rations of growing or laying chickens, ducks, and turkeys.

Draper (1944) fed as high as 24 percent processed garbage in a balanced ration to pullets without affecting palatability. Greater quantities lowered palatability and increased the feed consumption per dozen eggs produced. The use of 24 percent garbage meal, however, did not lower feed utilization.

In brief summary it might be stated that the Hawaii work gives promise that dehydrated garbage might be utilized by poultry. The product was degreased and Ayres (1943) indicated that high fat content for poultry was a disadvantage.

3. Dairy Cattle. Henke (1945) fed two Holstein cows a balanced concentrate ration containing 35 percent dried garbage for a two-week period. The milk production and concentrate consumption were compared with two-week control periods before and after the garbage-fed period. It took the cows one week to become used to the garbage-containing ration. Results are as follows:

MILK PRODUCTION AND CONCENTRATE CONSUMPTION IN DAIRY CATTLE OVER TWO-WEEK PERIODS
(Henke, 1945)

Cow number	*Concentrate ration*	*Milk production, pounds*	*Concentrate consumption, pounds*
162	Garbage	27.25	15.40
	Control	28.27	17.50
206	Garbage	23.35	14.30
	Control	22.30	14.25
Both cows	Garbage	25.30	14.85
	Control	25.28	15.87

Milk production remained almost the same on both rations, and there were no milk flavors detectable.

4. Sheep. Harper (1942) fed garbage tankage to lambs in the proportion of one part to seven parts corn. Though it was effective as a corn supplement, it was not as efficient nor as economical as cottonseed meal.

5. Beef Cattle. Central States Corporation (Appendix 2) recommends the inclusion of 10-20 percent Feed-All in the ration of beef. They suggested that it might prove feasible for use with molasses and some carrier, such as corn cobs, in producing a cheap beef ration.

Illustration No. 15

SORTING OUT UNDESIRABLE MATERIAL ON CONVEYOR BELT CARRYING GARBAGE TO COOKING VAT—OMAHA PROCESSING PLANT (1953)

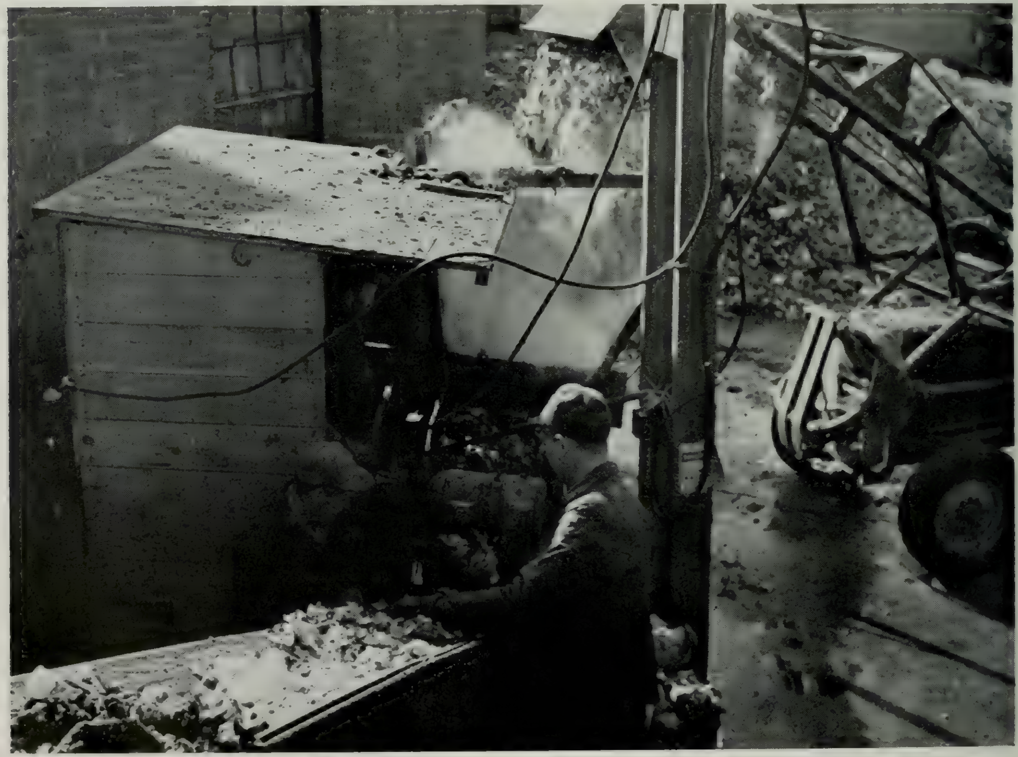

Photo courtesy of Central States Products Company, Omaha, Nebraska.

No experimental evidence is available to indicate or substantiate these recommendations.

Disease Aspects. As has been mentioned previously the Omaha dehydrated product is not completely sterile, having a total bacterial count of approximately 200,000 per gram of dry material.

Conditions recommended for cooking garbage to render it "safe" as an animal feed are that it be heated to at least 212 degrees F. in a fluid consistency and to be held there for at least 30 minutes (Long and Johnson, 1952). These conditions were defined to obtain a temperature of 145 degrees F. in pieces of pork up to 3 inches thick. The Omaha material, being ground, did not have chunks in it during the drying process. It took approximately 40 minutes for the garbage to pass through the drier, and the discharge temperature varied from 200-230 degrees F. The day upon which the driers were observed the discharge temperature from one was 205 degrees F., and the other, 215 degrees F. It is our opinion from observation and not from actual measurement that any piece of garbage would reach a temperature of 145 degrees F. for 30 minutes which should render the virus of V.E. nonviable (Long and Johnson, 1952). Temperatures of 176-212 degrees F. have been shown to kill the virus of foot and mouth disease in two to five minutes in various media (Levaditi et al., 1943).

Omaha is located in Douglas County, which was an area quarantined for V.E. by the Secretary of Agriculture on July 24, 1952, in the first quarantine for this disease (Duckworth, 1952). Through slaughter and indemnity, Douglas County was later removed from quarantine. During the time we were present Douglas County was again under quarantine due to new outbreaks of V.E.

Respectfully submitted,

P. H. McGauhey
Research Engineer
Hubert Heitman, Jr.
Asst. Prof. of Animal Husbandry

March 23, 1953

TABLE I

COMPOSITION OF GARBAGE AND FEEDS

	Dry matter, percent	*Digestible crude protein, percent*	*T. D. N.*	*Crude protein, percent*	*Crude fat, percent*	*Crude fiber, percent*
Feed-All	91.0	7.7 [a]	68.9 [a]	15.0	15.5	10.0
Feed-All-F	91.0	6.9 [a]	71.0 [a]	13.5	17.0	10.0
Dried Los Angeles garbage	89.1	7.6	70.7	14.8	18.8	10.3
Dried balanced * English swill [1]	89.7	18.7	61.7	24.8	11.0	7.8
Dried, degreased Hawaiian [3]	88.1	10.7 [a]	52.9 [a]	21.0	6.8	4.6
Garbage tankage [4]	95.0	7.9 [a]	71.2 [a]	15.4	18.3	9.0
Processed garbage [5]	95.6	9.1 [a]	76.8 [a]	17.9	22.0	18.6
Processed garbage, degreased [5]	94.7	11.0 [a]	51.4 [a]	21.6	5.4	23.2
Meat and bone scraps (50% prot.) [2]	93.9	41.8	64.6	51.0	10.1	2.1
Rice bran [2]	90.9	8.5	67.0	12.5	13.5	12.0
Cottonseed meal (43% prot.) [2]	92.7	36.4	75.8	43.9	7.1	9.0
Barley, Pacific Coast [2]	89.8	6.9	78.7	8.7	1.9	5.7
Corn, dent, No. 2 Grade [2]	85.0	6.6	80.1	8.6	3.9	2.0
Corn cobs [2]	90.4	0	45.7	2.3	0.4	32.1

* Manufacturer stated contents to be 25 percent pea pods, 65 percent cabbage leaves, 5 percent potatoes and 5 percent a mixture of bread, meat scraps, bone and fish waste.

[a] Dig. Coef. used from Biddiek and all, 1941.

Analyses are those of the Central States Corporation for Feed-All and the California Experiment Station, except as follows:

[1] Woodman & Evans, 1942.
[2] Morrison, 1948.
[3] Willet et al., 1948.
[4] Weaver, 1927.
[5] Purdue University, 1930.

APPENDIX I

SANITATION COMMISSION
601 City Hall
Omaha, Nebraska

Gentlemen: This general reply has been prepared in response to inquiries regarding the garbage drying process now in use in Omaha, and which have been referred to us for reply. The circumstances which brought about this means of disposal are perhaps a matter of record; however, I shall give you some of the important points in order to acquaint you more fully with the situation.

The outbreak of vesicular exanthema in garbage fed hogs had the effect of placing a quarantine on the operations of our feeding contractor, The Omaha Feeding Company. At the same time, the Nebraska State Legislature passed a law prohibiting the feeding of raw garbage to hogs, effective in some ninety days. This combination of circumstances made the contract inoperative on September 15, 1952.

It so happened that our local alcohol plant, operated by the Central States Corporation, had in standby a battery of driers normally used for drying spent grain. Preparation of this equipment to undertake experimental drying of the garbage was begun as soon as the emergency was apparent. During the time that this preparation was under way the garbage was disposed of, temporarily, by dumping it into the sewers. This has been and is the present practice of most of the Missouri River towns.

By September 18, 1952, temporary grinders had been installed. After a few test runs, the entire garbage output of Omaha was run through the drying process. It had been the opinion of the officials of the plant, and this writer, that the garbage would make a desirable feed when dried. The experience with this process, thus far, has enhanced our original appraisal, and that it results in a desirable feed material, there remains little doubt. The product is similar to tankage and contains 12 to 16 percent protein.

Our mayor, Glenn Cunningham, and the city council, seeing the merit of producing usable feed from this waste, accepted a proposal from the Central States Corporation to subsidize the process at the rate of $2,500 a month until markets could be well established and the necessary equipment obtained. Commitment for this subsidy was established for one year at a cost to the city of $30,000.

The process of drying the garbage does not save the City of Omaha money in comparison with the cost of dumpage into the Missouri River. This could be done without any cost additional to that of collection.

The cost of grinding before dumping into the river would approximate our present cost of subsidy to the Central States Corporation.

This move has, however, saved the city the cost of operating a sanitary land-fill for garbage disposal. This means of disposal would cost the city several times as much as the present subsidy payment, under present circumstances.

The justification of the present system of garbage disposal in Omaha would include the following items of merit:

1. The process is a contribution to local industry and agricultural feeding operations.
2. Useful feed, approaching one quarter million dollars or more in value, can be produced annually from material ordinarily considered worthless.
3. The dried feed is sterile and acceptable to the market, and the method does not contribute to the pollution of waters.
4. Even if a sanitary land-fill were to be used for trash, the presence of garbage is not an asset to the land-fill operation.

In my own opinion the process should eventually be self-sustaining and profitable, especially if there were a greater tonnage of garbage than is available in Omaha. It is not inferred, however, that the process will ever pay for the cost of garbage collection which by any pickup system will remain a liability, insofar as Omaha is concerned.

In Omaha, the garbage is collected separately from other refuse unwrapped, though one piece of paper or a single sack to line the garbage container is allowable. The entire garbage output of the City of Omaha, with a few unimportant exceptions, is being "flash dried" into animal feed.

For winter production, the dried garbage runs about ten tons per day and should approximate 4,000 tons per year or more. Present prices for this dried garbage solids or garbage tankage, as some prefer to call it, is about $40 per ton. The market so far has been rather easily able to absorb our local production.

The method of processing the garbage consists of first grinding the raw garbage and then drying it in a "flash dryer" or what is commonly referred to as a rotary drum flash dryer. The material reaches a temperature of 260 degrees Fahrenheit and is sterile when it leaves the process.

APPROXIMATE DRIED GARBAGE ANALYSIS
"GARBAGE TANKAGE"

Winter Analysis

14½%	Protein
25 %	Sugars
8 %	Water
14 %	Fats
13½%	Max. Fiber
11 %	Ash

Vitamins

B. Comp.	Pentothenic acid	6 mg/lb.
	Niacin	19 mg/lb.
	Choline chloride	500 mg/lb.
B_2	Riboflavin	1.5 mg/lb.
A	Carotin	2400 Int. Stand. Units/lb.

This drying process is now in successful operation here, and has handled all of the garbage output of the City of Omaha. Some improvements in equipment can, and will be made if the process is continued.

The problems presently facing Omaha include the undertaking of a city-wide trash and garbage pickup. The questions of whether combined or separate pickup will be used, its cost, and the desire of many people to wrap the garbage in papers, are now under consideration. The determination of the answers to these questions will determine the fate of this drying process as here practiced.

My connection with the above matters is not my normal function in Omaha; however, I was drafted by Mayor Glenn Cunningham to act in this garbage emergency. In case that this material will be used in some publication, copies of such items would be appreciated at this office.

I trust that the above will give you the information desired.

Herbert H. Ulrich
Chief Smoke Regulation Engineer
Sanitation Commission, Omaha, Nebraska

EXHIBIT NO. 29

ACTION BY NEW JERSEY OFFICIALS

STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE
Cooperating with the
UNITED STATES BUREAU OF ANIMAL INDUSTRY

To: County Agents *September 26, 1952*
Licensed Cattle Dealers
All N. J. Veterinarians
State Police
County Club Agents
Butchers
Auction Markets
All State Livestock Sanitary Officials
Officers of New Jersey Dairymen's Council
Truckers of Livestock
Swine Growers
Extension Specialists
Animal Husbandry Staff
Officers Swine Growers Association
Officers Breed Associations
State and Federal Licensed Slaughtering Establishments

Gentlemen: Action was taken by the New Jersey State Board of Agriculture on September 26th, 1952, for the control of *vesicular exanthema*, effective immediately and until further notice, as follows:

Whereas, A highly contagious, infectious, communicable disease of swine, known as vesicular exanthema, has appeared in hogs shipped into New Jersey from several sections of the United States and as this is an infectious disease of a transmissible character which will cause heavy losses, financial and otherwise, and

Whereas, The New Jersey statutes, under Title 4, Chapter 5, Article 1, authorizes the State Board of Agriculture to issue quarantines of a general or local nature whenever it shall have good reason to believe that a dangerous, contagious or infectious disease exists, in an effort to prevent further spread and to control and eradicate the disease in New Jersey,

It Is Therefore Hereby Ordered, That

1. Quarantines established by the Director of the Division of Animal Industry on farms infected with vesicular exanthema and on farms where such quarantines are deemed necessary because of probability of exposure, shall not be lifted until such time as the farm has been completely depopulated of swine, the premise has been cleaned and disinfected and trial hogs have indicated that the premise is free of vesicular exanthema infection.

2. The sale of swine is prohibited in New Jersey through livestock auction markets except for immediate slaughter.

3. The exhibition of swine at all shows, fairs and expositions in New Jersey is prohibited.

4. No swine may be moved from any premises in New Jersey, except as provided in paragraph 5 of this order, until all swine on the premise have been inspected by a veterinarian approved by the Director of the Division of Animal Industry and a health certificate issued attesting that all swine on the premise have been inspected and found free from infection with or exposure to, any infectious and contagious disease.

5. Infected and exposed hogs may be moved, following receipt of acceptance from the purchaser, to a federal-approved slaughtering establishment for slaughter and further processing only upon special permit issued by the Director of the Division of Animal Industry or by the Federal Inspector in Charge, or they may be moved from one quarantined farm to another quarantined farm on a special permit issued by a regularly employed state or federal veterinarian. When such infected or exposed hogs are moved, all trucks used in such movement shall be thoroughly cleaned and disinfected immediately following delivery of the hogs at destination.

6. No person shall move, transport or otherwise convey swine on the highways of this state, except as provided in paragraph 5 of this order, unless such swine are moved in cleaned and disinfected trucks and the person shall have in his possession an approved health chart or permit.

7. In New Jersey, no person, firm, corporation or others shall receive or accept any swine for any purpose that are not accompanied by a certificate of health indicating that the swine originate from a drove that was inspected by an approved veterinarian and found free from infectious disease or exposure thereto, except as provided in paragraph 5 of this order.

And It Is Further Hereby Ordered, That

8. No swine shall be imported into New Jersey for the purpose of slaughtering, feeding, breeding, exhibition or for sale or any other purpose except under the following conditions:

(a) No swine or unprocessed pork products derived from swine having been fed garbage, shall be imported into New Jersey.

(b) No swine shall be shipped into the state except upon written permit from the Director of the Division of Animal Industry. The application for permit shall state the name and address of the consignor; the name and address of the consignee; the purpose for which permit is requested—for example, breeding, feeding, exhibition or immediate slaughter; the mode of transportation and route, and shall attest that the swine have not been fed garbage.

(c) No swine shall be permitted entry which emanate from a farm or an area under state or federal quarantine for any infectious disease of swine.

(d) No swine shall be permitted entry unless they originate in a herd that has been examined for health by a qualified veterinarian and found free from infectious and contagious disease or exposure thereto and this fact attested to by the livestock sanitary official of the state of origin and the affixing of his signature to the health certificate which accompanies the animals in transit.

(e) No swine shall be permitted entry unless they are loaded in cleaned and disinfected conveyances and are shipped direct from point of origin to point of destination within New Jersey without unloading for feed, water or rest en route. If necessary to feed and water en route, the troughs used for this purpose shall be cleaned and disinfected with either 2 percent lye or 4 percent soda ash immediately prior to use.

9. This order shall take effect immediately.

PENALTIES

The statutes provide the following penalties for violations of the provisions of these regulations:

4:5-3. Penalty for violating orders of board. A person who shall violate or fail to comply with an order of the board, or its constituted agent, made pursuant to sections 4:5-1 and 4:5-2 of this title, shall be liable to a penalty of not less than fifty nor more than one hundred dollars for each violation or failure to comply, to be sued for and recovered by and in the name of the secretary of agriculture in the manner provided in article 2 of chapter 23 of this title.

4:5-16. Transportation of animals within, into or from quarantined area. When a county, city, township, district, animal, herd of animals or poultry is quarantined pursuant to this article and public notice thereof is given as provided in section 4:5-14 of this title, no owner, keeper or other person shall drive or transport, or permit to be driven or transported, into, out of, or from one place to another within such county, city, township, district or place of quarantine, any animal of the kind named in the quarantine, or visit any animal, herd of animals or poultry so quarantined without a written permit signed by the department or its constituted agent or representative.

4:5-17. Penalty. A person who shall violate any of the provisions of section 4:5-16 of this title shall for a first offense be liable to a penalty of not less than one hundred nor more than two hundred dollars, and shall for each subsequent offense be liable to a penalty of two hundred dollars or to imprisonment for not more than one year, or both.

The penalty shall be sued for and recovered and the imprisonment imposed in an action to be brought by and in the name of the secretary of agriculture in the manner provided in article 2 of chapter 23 of this title.

The State Police will cooperate in carrying out the orders of the State Board. They will challenge the movement of all swine on New Jersey highways, which movement will be governed by the preceding regulations.

New Jersey Department of Agriculture
W. H. Allen, Secretary

EXHIBIT NO. 30

DIVISION OF ANIMAL INDUSTRY, NEW JERSEY DEPARTMENT OF AGRICULTURE

REGULATIONS FOR THE IMPORTATION OF FEEDER SWINE

Approved by the
New Jersey State Board of Agriculture
December 23, 1952

January 29, 1953

Persons desiring to import feeder swine must make application for a permit for *each shipment* on form D. A. I. 360, giving the approximate number of swine to be imported, the name and address of the consignor and point of origin of the swine, together with the name and address of the consignee and point of destination in New Jersey and location of the farm on which the swine are to be maintained.

Note: The request for permit will serve to inform the state when shipments are to be made and will give the state an opportunity to refuse a permit for the importation of swine from an area where it is known that infection exists.

A permit will be issued only under the following conditions:

1. That the importer has made provision for and agrees to hold the imported swine separate and apart from all other swine on his premises for a period of 10 days.

2. That on arrival the importer agrees to employ his veterinarian to examine the swine critically for the presence of any infectious disease.

3. That the importer understands that should any swine exhibit symptoms of a highly infectious disease such as foot-and-mouth, vesicular exanthema or vesicular stomatitis, all swine in the lot must be disposed of immediately on a permit issued by the Department of Agriculture, to a federal inspected establishment for slaughter and special processing at the importer's expense.

Note: This provision will provide a method of immediately liquidating promptly any infection and would, in our judgment, prevent the spread of infection of vesicular exanthema within the state.

4. Permits for the importation of feeders will not be granted for introduction on premises where active vesicular exanthema is present, that is where swine are running high temperatures, have blisters on feet, coronary band on snout or are lame because of ruptured blisters caused by infection.

5. No swine fed garbage are eligible. Feeders must be inspected for health by a qualified veterinarian, who shall state that the swine are not, to his knowledge, a part of any lot of swine fed garbage or a part of a lot affected with any infectious disease. He shall state whether or not the swine have, previous to 30 days, been treated with serum and virus and shall indicate on the health certificate whatever treatment he has given the hogs prior to shipment. He shall indicate the number of hogs and their approximate weight.

6. *No swine* having been *treated* with serum and *virulent virus are eligible for shipment within 30 days of treatment.*

7. The health certificate shall be signed by the qualified veterinarian and dated and shall be made out in triplicate and *carry the signature of the livestock sanitary official of the state of origin or his designated agent. One copy shall accompany the hogs* in transit along with the certificate of cleaning and disinfection of transporting vehicle. *One copy shall be mailed direct to the Director, Division of Animal Industry, New Jersey Department of Agriculture, 1 West State Street, Trenton* and the *third copy shall be sent to the livestock sanitary official* of the state of origin.

8. No swine may be shipped from any farm, yard, assembly point or market on which infectious disease exists or is suspected to exist.

9. No swine are eligible for shipment to New Jersey that come from any yard, market or farm where raw garbage is fed or where raw garbage fed swine are sold.

Note: History of the recent outbreak of vesicular exanthema clearly indicates that garbage fed swine played a very major part in introducing vesicular exanthema infection to major markets.

10. No swine destined for New Jersey shall have been treated with hog cholera non-modified virus within 30 days immediately preceding the day of shipment to New Jersey. They may be treated with serum alone immediately prior to shipment. If possible and practicable the swine should be held in isolation for a period of 10 days prior to loading for transport to New Jersey.

Note: It is an established fact known to science for years that swine injected with live, fully virulent virus such as is employed in the simultaneous serum virus vaccination actually establishes virulent hog cholera in the body of swine so treated; that these animals excrete the virulent virus in their urine for several weeks following vaccination. Such treated swine develop a leucopenia or a lowered bodily resistance to all infections for a period of from five to ten days following inoculation and as a consequence should not be subjected to unusual conditions such as change of diet or that caused by shipping for a period of from 21 to 30 days following treatment.

11. Swine consigned to New Jersey must be loaded on conveyances which have been *cleaned* and *disinfected* under supervision by a full-time employee of the state or federal government or by a veterinarian approved by the livestock sanitary official of the state of origin of the shipment. The certificate of cleaning and disinfection shall be either a part of the health certificate or attached to it.

12. *These certificates of health* and of *cleaning and disinfection* of the conveyance and the permit *shall accompany the swine* in transit and shall be in the possession of the driver in the case of truck or automobile movement and attached to the bill of lading in the instance of railroad shipments. All such *certificates shall be surrendered to the person who receives the swine in New Jersey,* i.e., the owner or his agent and shall be surrendered to the veterinarian who inspects swine after arrival who shall forward it to the Director, Division of Animal Industry, New Jersey Department of Agriculture, 1 West State Street, Trenton 8, New Jersey.

13. If shipped by rail and there is need for unloading for feed, water and rest, the unloading receiving pens must be thoroughly cleaned and disinfected before being used as well as all utensils used for feed and water. Upon arrival of rail shipments at point of destination, they must be moved to the purchaser's farm in thoroughly cleaned and disinfected trucks or other conveyances.

14. The importer shall immediately notify the Division of Animal Industry of the arrival of swine permitted entry.

15. *No raw garbage* is to be fed imported swine during the period of isolation and quarantine.

16. Care must be exercised to see to it that those who service the swine while in isolation and quarantine wear clean garments and overshoes when feeding and caring for these swine and separate buckets and other utensils shall be employed exclusively for these swine.

17. *Inspection after importation.* On arrival a veterinarian shall be employed to examine swine for health and make a report to the Director of the Division of Animal Industry, Trenton.

18. All swine imported under this permit will be available for inspection at any time by agents of the Division of Animal Industry or any veterinarian designated by the Director of the Division of Animal Industry during the quarantine period of 10 days following arrival.

19. The pens and buildings used for the isolation of imported swine shall be cleaned and disinfected immediately following use.

20. You are strongly urged to boil all garbage fed to swine on your farm. It is the duty and intent of the department to prevent infection of swine with infectious disease. No progress can be made if disease free pigs are exposed to infection on the farms where fed.

21. It is within the province of pig feeders to maintain swine free from infectious disease. In our opinion, one who fails to do so constitutes a menace to the livestock industry of the state and cannot expect to be granted further permits for the importation of swine.

22. Noncompliance with the provisions set forth will constitute sufficient cause for the Division of Animal Industry to refuse to issue further permits.

23. Permits should not be granted any person feeding raw garbage.

NEW JERSEY DEPARTMENT OF AGRICULTURE
DR. R. A. HENDERSHOTT
Director, Division of Animal Industry

EXHIBIT NO. 31

ACTION BY VIRGINIA OFFICIALS

STATEMENT ISSUED BY THE DEPARTMENT OF AGRICULTURE

PARKE C. BRINKLEY, COMMISSIONER
Richmond, Virginia
September 8, 1952

COMMERCIAL GARBAGE FEEDING OF SWINE

The feeding of raw garbage commercially to swine is a practice that sooner or later must be discontinued. By raw garbage is meant commercial garbage from hotels, hospitals, restaurants, public institutions, military and naval installations and the like that has not been thoroughly cooked as garbage, even though the component parts of the garbage may or may not have been cooked separately.

The reasons that this is an undesirable practice are many. Among the more important reasons are the following:

1. Garbage fed pork is soft or oily pork and less desirable as meat.
2. Raw garbage perpetuates trichinosis, an exceedingly painful disease of man, contracted by eating pork that has not been thoroughly cooked.
3. It is the prime source of spread and a perpetuation of hog cholera. Cholera immunized hogs fed on raw garbage are universally considered the acid test for immunization. The percentage of losses from garbage fed hogs is greater than any other single type swine operation that we have ever had.
4. Vesicular exanthema which is our current serious threat to the swine industry, is primarily a disease of garbage fed hogs. Thoroughly cooked garbage would remove this threat to the entire industry.

Livestock sanitary control officials will in all probability take some action in Louisville in October regarding this problem. There is considerable feeling at this time in favor of urging the Secretary of Agriculture to prohibit the interstate movement of hogs that have been fed raw garbage and to prohibit federally inspected slaughtering houses from accepting hogs that have been fed raw garbage. It is doubtful whether this can be accomplished without great pressure being put on the secretary.

We face the ever present threat of animal plagues from outside of this nation and when we look at the current Vesicular Exanthema problem and the rapidity with which it has been spread this summer from coast to coast, it is obvious that we are vulnerable to this sort of thing and our responsibilities demand that we take some active steps.

The feeding of raw garbage is one of the most serious threats to the swine, and possibly to the cattle industry, and it should be stopped.

EXHIBIT NO. 32

ACTION BY WASHINGTON OFFICIALS

STATE OF WASHINGTON
DEPARTMENT OF AGRICULTURE
Division of Dairy and Livestock
Olympia

ORDER NO. 638
Superseding Order No. 569
Effective September 5, 1952

RULES AND REGULATIONS RELATING TO HOG CHOLERA, SWINE PLAGUE, SWINE ERYSIPELAS, AND VESICULAR EXANTHEMA

I, Sverre N. Omdahl, Director of Agriculture of the State of Washington, by virtue of the authority vested in me under Chapter 16.36 Revised Code of Washington, do make and issue the following rules and regulations relating to hog cholera, swine plague, swine erysipelas, and vesicular exanthema.

Regulation 1. (a) When an outbreak of hog cholera, swine plague, swine erysipelas or vesicular exanthema appears, the owner must immediately notify the Director of Agriculture, or an authorized veterinary inspector of the Department of Agriculture. (b) Said officer shall quarantine all portions of the premises upon which hog cholera, swine plague, swine erysipelas or vesicular exanthema exists, and placard same with cards furnished for this purpose.

Regulation 2. All persons, except the owner, duly authorized assistants or medical advisor, are forbidden to enter an enclosure where diseased hogs are confined.

Regulation 3. Hogs must not be removed from any quarantined premises except by permission of the Director of Agriculture or his authorized agent.

Regulation 4. It shall be the duty of the owner, or any other person having in charge any swine that have died of any infectious disease, immediately upon the fact of such death coming to his knowledge to burn the same to ashes and clean and thoroughly disinfect his pens, yards and swine houses.

Regulation 5. It shall be unlawful to feed any restaurant, hotel, household or market garbage, or any garbage to hogs in which meat scraps may appear, or any offal from slaughtered animals unless sterilized by cooking at 160° for 30 minutes.

PENALTY: Any person, firm or corporation violating any of these regulations shall be guilty of a violation of the law and punished as by statute provided.

(Signed) Sverre N. Omdahl,
Director of Agriculture

(Signed) A. E. Crouse,
Supervisor
Division of Dairy and Livestock

Signed at Olympia, Washington
September 5, 1952

Subsequent to this regulation the Washington Legislature took action and passed a garbage cooking law.

EXHIBIT NO. 33

ACTION BY WASHINGTON LEGISLATURE

Effective February 16, 1953

An act relating to animal diseases; defining certain terms; regulating garbage feeding; amending Chapter 16.36, R.C.W.; and declaring an emergency.

Be it enacted by the Legislature of the State of Washington:

Section 1. As used in this act:

"Director" means the Director of Agriculture of the State of Washington or his authorized representative.

"Department" means the Department of Agriculture of the State of Washington.

"Garbage" means the solid animal and vegetable waste and offal together with the natural moisture content resulting from the handling, preparation, or consumption of foods in houses, restaurants, hotels, kitchens, markets, meat shops, packing houses and similar establishments or any other food waste containing meat or meat products.

Section 2. Section 16.36.020, R.C.W., as derived from Section 1, Chapter 172, Laws of 1947, is amended to read as follows:

The Director of Agriculture shall have general supervision of the prevention of the spread and the suppression of infectious, contagious, communicable and dangerous diseases affecting the domestic animals within, in transit through, and, by means of the Division of Dairy and Livestock, may establish and enforce quarantine of and against any and all domestic animals which have been fed garbage or which are affected with any such disease or that may have been exposed to others thus affected, whether within or without the state, for such length of time as he deems necessary to determine whether any such animal is infected with any such disease. The Director shall also enforce and administer the provisions of this act, and when garbage has been fed to swine he may require the disinfection of all facilities, including yard, transportation and feeding facilities, used for keeping such swine.

Section 3. There is added a new section to Chapter 16.36, R.C.W. to read as follows:

All garbage before being fed to swine shall be thoroughly heated to at least two hundred and twelve degrees Fahrenheit for at least thirty minutes in equipment and by methods approved by the Director. The Director may enter at reasonable times upon any private or public property for the purpose of investigating conditions relating to the treating of garbage to be fed to swine.

Section 4. There is added a new section to Chapter 16.36, R.C.W., to read as follows:

No person shall feed garbage to swine without first securing a license therefor from the Department of Agriculture. The license shall be renewed on the thirtieth of June of each year. Application therefor shall be accompanied by a license fee of ten dollars which shall be returned to the applicant if the license is denied, or credited to the general fund if the license is granted. The license is non-transferable and a separate license shall be required for each place of business if an operator has more than one feeding station.

Section 5. There is added a new section to Chapter 16.36, R.C.W., to read as follows:

Upon receipt of an application for a license to feed garbage, the director shall cause an inspection to be made of the premises to determine that the location, construction and facilities meet the following requirements and any rules or regulations on sanitation which may be hereafter promulgated:

(1) Feeding platforms must be constructed of impervious material which must be kept reasonably clean at all times with provision for the proper disposal of all refuse to prevent fly breeding, harboring of rats or other insanitary conditions.

(2) Ample water supply under pressure must be provided to properly clean the feeding area and an approved drainage system, connected to a sewer, septic tank or cesspool of proper capacity, must be provided for all cleaning operations.

Section 6. There is added a new section to Chapter 16.36, R.C.W., to read as follows:

Upon failure to comply with any of the provisions of this act, or any rules or regulations promulgated under Chapter 16.36, R.C.W., the Director may revoke such license or refuse to issue a license to an applicant after first giving the licensee or applicant an opportunity to be heard in regard to the violation.

Section 7. There is added a new section to Chapter 16.36, R.C.W., to read as follows:

Sections 3, 4, 5, and 6 of this act shall not apply to any person feeding garbage from his own domestic household.

Section 8. Section 16.36.110, R.C.W., as derived from Section 33, Chapter 165, Laws of 1927, is amended to read as follows:

A violation of or a failure to comply with any provision of this chapter shall be a misdemeanor. Each day upon which a violation occurs shall constitute a separate violation. Any person violating the provisions of this act may be enjoined from continuing such violation.

Section 9. This act is necessary for the immediate preservation of the public peace, health and safety, and for the support of the state government and its existing public institutions, and shall take effect immediately.

Approved by the Governor February 16, 1953.

EXHIBIT NO. 34

ACTION BY WYOMING OFFICIALS

WYOMING LIVESTOCK AND SANITARY BOARD
Cheyenne, Wyoming

REGULATION PROHIBITING FEEDING OF UNCOOKED GARBAGE TO SWINE

To prevent the perpetuation and dissemination of infectious and contagious diseases among swine, the Wyoming Livestock and Sanitary Board hereby adopts the following regulation requiring the sterilization of all garbage before entering feed-lot premises in the State of Wyoming:

Garbage shall mean all refuse matter, animal or vegetable, and shall include all waste material, by-products of a kitchen, restaurant, dining car, or slaughterhouse, every refuse accumulation of animal, fruit or vegetable matter liquid or otherwise.

No person, firm, partnership, or corporation shall feed garbage to hogs in the State of Wyoming unless such garbage has been heated to a temperature of 212 degrees Fahrenheit (boiling point) except this regulation shall not apply to an individual who feeds to his own hogs only the garbage obtained from his own household.

This regulation becomes effective October 15, 1952.

Wyoming Livestock and Sanitary Board
(Signed) Day P. Espy, President

Attest:
(Signed) G. H. Good, D.V.M., State Veterinarian
Adopted October 15, 1952

EXHIBIT NO. 35

ACTION BY WYOMING LEGISLATURE

A BILL
FOR

An act to prevent the feeding of untreated garbage to swine.

Signed by Governor, February 7, 1953.

January 16, 1953. Introduced, read first time, referred to Committee No. 15, delivered to Printing Committee.

Be It Enacted by the Legislature of the State of Wyoming:

Section 1. (Definition) For the purposes of this act, the following words shall have the meanings ascribed to them in this section:

(a) "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of foods including animal carcasses or parts thereof.

(b) "Person" means the State, any municipality, political subdivision, institution, public or private corporation, individual, partnership, or other entity.

Section 2. (a) No person shall feed garbage to swine, without first securing a permit therefor from the Wyoming Livestock and Sanitary Board. Such permits shall be secured thirty (30) days after the effective date of this act, and shall be renewed on the first day of April of each year. The Wyoming Livestock and Sanitary Board shall make a charge of $1 for each annual permit.

(b) Provided, this act shall not apply to any person who feeds to his own swine only the garbage obtained from his own household.

Section 3. Any person desiring to obtain a permit to feed garbage to swine shall make written application therefor to the Wyoming Livestock and Sanitary Board in accordance with the requirements of the said board.

Section 4. Upon determination that any person having a permit issued under this act, or who has applied for a permit hereunder, has violated or failed to comply with any of the provisions of this act, or any of the rules or regulations promulgated thereunder, the Wyoming Livestock and Sanitary Board may revoke such permit or refuse to issue a permit to an applicant therefor.

Section 5. All garbage, regardless of previous processing, shall before being fed to swine, be thoroughly heated to the boiling point for at least 30 minutes, unless treated in some other manner which shall be approved in writing by the Wyoming Livestock and Sanitary Board as being equally effective for the protection of public health.

Section 6. (a) Any authorized representative of the Wyoming Livestock and Sanitary Board shall have the power to enter at reasonable times upon any private or public property for the purpose of inspecting and investigating conditions relating to the treating of garbage to be fed to swine as required by this act.

(b) Any authorized representative of the Wyoming Livestock and Sanitary Board may examine any records or memoranda pertaining to the feeding of garbage to swine. The Wyoming Livestock and Sanitary Board may require maintenance of records relating to the operation of equipment for and procedure for treating garbage to be fed to swine. Copies of such records shall be submitted to the Wyoming Livestock and Sanitary Board on request.

Section 7. The Wyoming Livestock and Sanitary Board is hereby charged with administration and enforcement of the provisions of this act.

Section 8. Any person who shall violate any of the provisions of, or who fails to perform any duty imposed by, this act, or who violates any rule or regulation promulgated thereunder shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than $100 or by imprisonment for a term of not more than six months, or by both such fine and imprisonment, in the discretion of the court. In addition thereto, such person may be enjoined from continuing such violation. Each day upon which such violation occurs shall constitute a separate violation. It is further provided that no indemnity shall be paid by the State to any person feeding garbage to swine in violation of this act.

Section 9. Whereas an emergency exists, therefore, this act shall take effect and be in force 30 days after its passage.

EXHIBIT NO. 36

GARBAGE IS BEING COOKED IN CHEYENNE, WYOMING

The following communication from the State Veterinarian describes action to combat vesicular exanthema on hog ranch in Wyoming:

"I wish to acknowledge receipt of your inquiry of February 9th and in response to your request we are sending you eight copies of Wyoming Bill S. F. No. 11, 'An act to prevent the feeding of untreated garbage to swine, together with the regulation adopted by the Wyoming Livestock and Sanitary Board on October 15, 1952.' No serious difficulties were encountered in passage of this bill by the Legislature and it was signed by the Governor on February 7, 1953. (See Exhibit No. 35.)

"I am also sending you two photographs of garbage cooking equipment at the Harold Wright farm east of Cheyenne. I might add that the garbage truck is driven into the large doorway and steam pipes dropped directly into the truck—the garbage is brought to the boiling point and cooked for at least 30 minutes. I am sorry I do not have an illustration of the steam pipes being dropped into the truck but this equipment, consisting of the 50 horse-power steam generator was purchased from the Clayton Mfg. Co., El Monte, California and it may be you can obtain complete information from the company. When these photographs have served your purpose, I will appreciate you returning them to me as they are all I have for my files.

"Mr. Wright, on whose premises the infection was found in Wyoming, garbage feeds approximately 1,500 head of hogs and supplements the cooked garbage with 10 percent corn and oats and 1 percent Purina Supplement, in powder form.

"Following the completion of the cleaning and disinfecting of the Wright premises we started to repopulate the premises on November 18, 1952, and at this time there are approximately 600 hogs being garbage fed on this place. Hogs are being inspected at least once a week and no further infection has been found.

"The experiment of feeding cooked garbage has not been carried on long enough to definitely state as to just how the hogs are going to respond to the cooked garbage. However, Mr. Wright told be this morning a garbage feeder who is not cooking the garbage is at least 50 years behind the times.

"Before Mr. Wright purchased this equipment he traveled to several states observing various garbage cooking facilities and decided this was the best equipment he had seen."

(Signed)

G. H. Good
State Veterinarian
Livestock and Sanitary Board
Cheyenne, Wyoming

February 12, 1953

Illustration No. 16
GARBAGE COOKING PLANT, CHEYENNE, WYOMING
HAROLD WRIGHT FARM

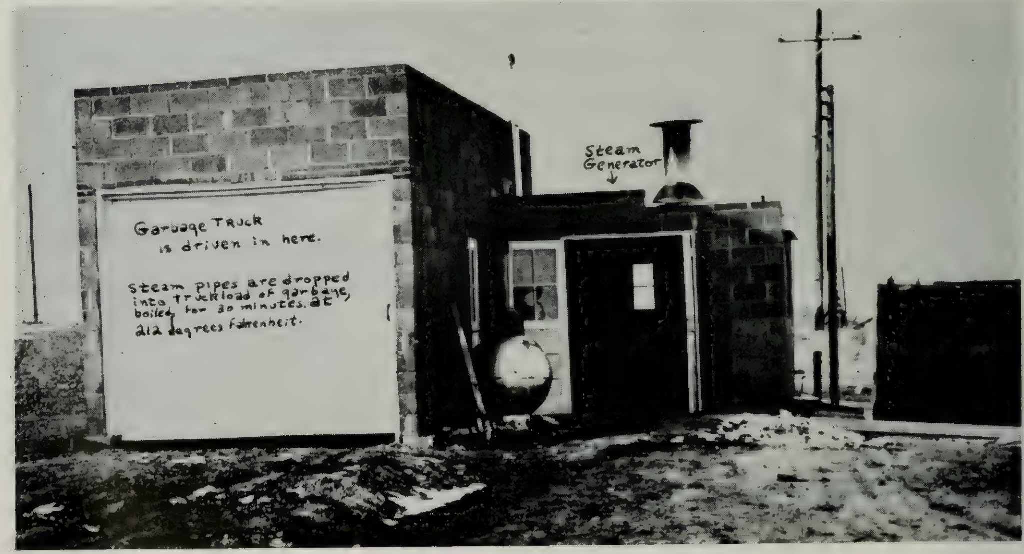
Steam Generator
Garbage Truck is driven in here.
Steam pipes are dropped into truckload of garbage, boiled for 30 minutes at 212 degrees Fahrenheit.

Illustration No. 17

GARBAGE COOKING EQUIPMENT, CHEYENNE, WYOMING—50 HORSEPOWER STEAM GENERATOR ON HAROLD WRIGHT FARM

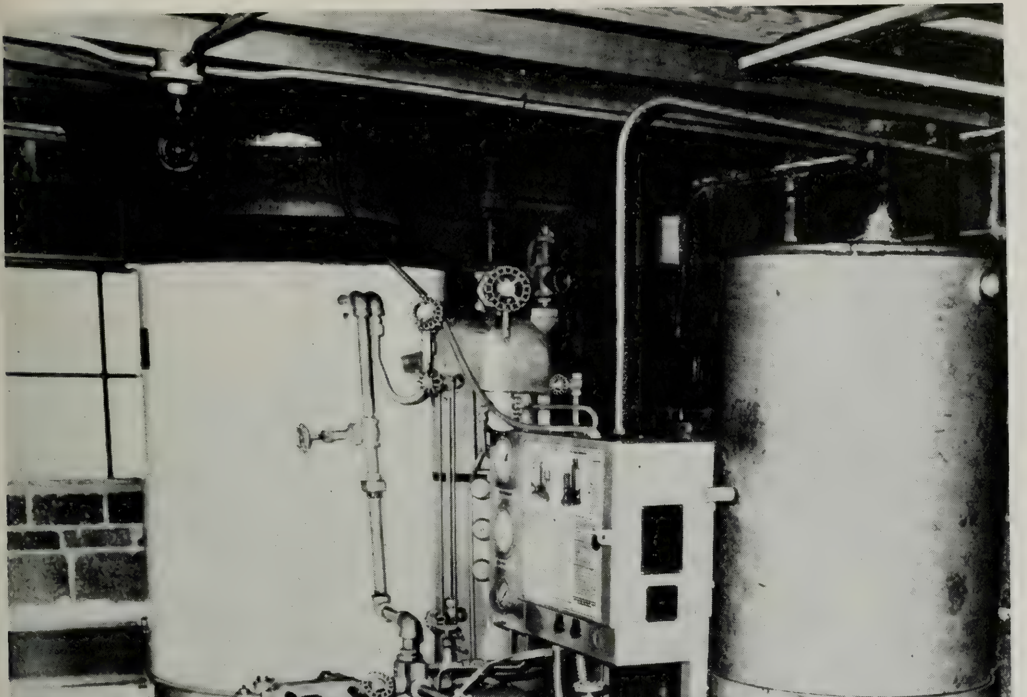

EXHIBIT NO. 37

ACTION BY ASSEMBLY OF STATES

ELEVENTH GENERAL ASSEMBLY OF THE STATES
COUNCIL OF STATE GOVERNMENTS

December 4, 5, 6, 1952, Chicago, Ill.

Resolution relative to Vesicular Exanthema

Be it resolved by the Eleventh General Assembly of the States that the staff of the Council of State Governments be directed to prepare and circulate among the states appropriate suggested legislation dealing with measures for the eradication of the hog disease known as vesicular exanthema.

EXHIBITS

CALIFORNIA LEGISLATURE LOOKS AT V.E.

EXHIBIT NO. 38

LEGISLATIVE AUDITOR'S ANALYSIS OF PROPOSED BUDGET OF DEPARTMENT OF AGRICULTURE, VESICULAR EXANTHEMA CONTROL

December 17, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Joint Legislative Committee on Agriculture and Livestock Problems
Sacramento, California

DEAR SENATOR HATFIELD: This is in answer to your request that we examine the Department of Agriculture's proposed budget for enforcing garbage cooking and for indemnities in connection with the eradication of vesicular exanthema among swine.

At the present time the department is spending something over $36,000 yearly for vesicular exanthema control. This money is provided out of funds budgeted for the Bureau of Livestock Disease Control. While specific cost records are not available, present expenditures are estimated by the department approximately as follows:

5 veterinarians	$30,000
Operating expenses	4,500
Equipment	1,600
	$36,100

You will perhaps recall that the department, in its statement on vesicular exanthema to your committee on August 7, 1952, estimated a total cost to the taxpayer for inspection of hog feeding ranches approximating $117,000. The difference is accounted for by county costs in the form of county livestock inspectors who make many of the hog ranch inspections.

At the present time the five state veterinarians spend the major portion of their time dealing with specific outbreaks of vesicular exanthema and in making inspections of hogs that are being shipped from the ranches. Three of them work in the Bay area, one in the Los Angeles area and the other on general assignment. The department tells us that these five veterinarians presently are doing vesicular exanthema work at the expense of other activities.

In the event the mandatory cooking of garbage becomes law, the department estimates that its budgetary requirements for the first year will approximate $673,613, of which $48,613 will be for support and $625,000 as a reserve for indemnities. Details of the proposed budget are as follows:

Salaries and wages	
1 supervisor garbage feeding hygiene	$7,356
5 livestock inspectors	17,700
Seasonal help	200
Total salaries and wages	$25,256
Operating expense	
Travel (6 at $125 per month)	$9,000
Auto operation (6 at 1,800 miles per month (3.1¢))	4,017
Other (print., postage, telephone and telegraph, etc.)	540
Total operating expense	$13,557
Equipment	
Office—additional	$200
Auto—additional	9,600
Total equipment	$9,800
Total support	$48,613
Indemnities—Reserve	
25,000 hogs at $50 each (State's share ½)	$625,000
Total budget	$673,613

Because there is little existing experience upon which to predicate the proposed budget, the department has made the following assumptions:

1. In addition to swine inspections, the state employees will spend a major portion of their time assisting hog feeders in planning, installing and making effective the operation of garbage cooking apparatuses and in helping the hog feeders develop sanitary plant layouts. Livestock inspectors will be able to do this job with a resultant saving in the use of veterinarians.
2. The inspectors will be located geographically in accordance with present disease control installations and the location of hog feeders. One livestock inspector will be located at each of the following: Fresno, San Francisco, Sacramento, Los Angeles and Redding.
3. Each hog feeding installation should be inspected once a week.
4. Present county livestock inspectors will continue to make inspections, particularly in Southern California.
5. State veterinarians will continue to participate in the program, particularly when their services are needed in connection with specific outbreaks of vesicular exanthema. This cost will be absorbed as at present.
6. Approximately 40 percent of the existing 400 hog feeders will go out of business if garbage cooking becomes compulsory. If this does not happen, the budget will have to be increased.
7. Clerical needs can be absorbed in the existing clerical staff.
8. Indemnities may or may not be necessary. However, the department foresees that 10 percent of the hogs on feeder farms might be infected at a given time and that their slaughter might be necessary to bring the disease under control. This is contingent upon the desires of the Federal Government and the Legislature. If no large scale slaughter is necessary, a considerable savings will result in indemnities.

On the basis of the above assumptions and in view of the lack of comparative information in this activity, we are of the opinion that the department's proposed budget is reasonable.

In the event compulsory garbage cooking is instituted, we recommend that consideration be given to a licensing system as a means of making this activity at least partially self-supporting.

Sincerely yours,

A. ALAN POST
Legislative Auditor

EXHIBIT NO. 39

A PROPOSED MEASURE, CALIFORNIA LEGISLATURE

SENATE BILL No. 892

Introduced by Senators Hoffman and Hatfield

January 14, 1953

REFERRED TO COMMITTEE ON AGRICULTURE

An act to add Article 2b to Chapter 3 of Division 2 of the Agricultural Code, relating to the feeding of garbage to swine.

The people of the State of California do enact as follows:

SECTION 1. Article 2b is added to Chapter 3 of Division 2 of the Agricultural Code, to read:

Article 2b. Swine Diseases From Garbage

216. This chapter is designed to provide a means of curbing the spread of vesicular exanthema of swine in this State through preventive means based upon the recommendations of leading veterinary medical authorities and animal disease research scientists to the effect that, since raw garbage containing pork meat scraps keeps the causative virus alive, the feeding thereof to hogs renews the infective cycle and, therefore, such feeding should either be prohibited or such raw food supply treated or processed sufficiently to destroy the virus.

The spread of vesicular exanthema to 32 states since June, 1952, significantly demonstrates the highly contagious character of the disease, leading to action by other states to destroy infected and exposed swine and reimbursing owners therefor, as well as providing for the processing of raw garbage in some of these states as a prophylactic measure against recurrence of the disease.

216.1. In order to prevent the spread of vesicular exanthema and other contagious and infectious diseases of hogs, it shall be unlawful to feed garbage to swine unless same has been processed, for the purpose of destroying the virus of said vesicular exanthema disease and such other diseases, in accordance with the provisions of this article or the rules and regulations of the director promulgated thereunder.

216.2. As used in this article, "garbage" means any waste material composed in whole or in part of meat, meat scraps or animal offal, regardless of place, method or incidence of origin.

216.3. This article does not apply to any individual who feeds garbage only from his own household to swine of his own production.

216.4. Institutions and agencies of the State or of a county or of any municipal or other public corporation feeding garbage to swine shall not be required to procure a license, but shall comply with all other provisions of this article and rules and regulations issued hereunder.

216.5. It is unlawful to feed garbage to swine without first procuring from the director an annual license for each separate premises where garbage is fed to swine.

216.6. Applications for such licenses shall be in the form prescribed by the director, and shall state the name and address of the applicant, the location of the premises for which the license is requested, and such other information as the director may require.

216.7. Each application for a license to feed garbage to swine shall be accompanied by a fee in an amount contingent upon the average number of hogs fed during the preceding calendar year. For an average number of 100 or less hogs the fee shall be twenty-five dollars ($25); for an average number of between 100 and 1,000 hogs the fee shall be fifty dollars ($50); and for an average number of 1,000 or more hogs the fee shall be one hundred dollars ($100). Application for renewal of a license shall be made on or before the last day of the calendar year for which the license was issued. To any fee not paid when due, there shall accrue and be added a penalty of twenty-five dollars ($25). Any moneys derived under the provisions of this article shall be paid into the State Treasury to the credit of the Department of Agriculture Fund, to be used for carrying out the provisions of this article.

216.8. Each license issued under the provisions of this article shall entitle the licensee to feed garbage to swine on the premises described therein, during the calendar year for which the license is issued, in accordance with the provisions of this article and rules and regulations issued hereunder, and in compliance with local and municipal ordinances applicable to the feeding of garbage to swine.

216.9. The director may refuse to issue a license or renewal of license, and may revoke or suspend any license, as the case may require, when he finds, after hearing, that the premises described in the application or license are not operated in a clean and sanitary manner, are not adequately equipped or maintained in the manner required by the provisions of this article or rules and regulations issued hereunder, or that the applicant or licensee has violated any of said provisions or any lawful order of the director. The proceedings for all hearings under the provisions of this article shall be conducted in accordance with Chapter 5 of Part 1 of Division 3 of Title 2 of the Government Code, and the director shall have all the powers granted therein.

216.10. The director may make and enforce such rules and regulations as he may deem necessary to carry out the provisions of this article. He may enter any premises where garbage is fed to swine and may examine and test any equipment or facilities for processing and handling garbage. He may in writing order any person subject to this article to cease the operation of any equipment or facility which he finds unsuitable or improperly operated or maintained.

216.11. All garbage, regardless of previous processing, before being fed to swine, shall be thoroughly heated to at least 212 degrees Fahrenheit for at least 30 minutes, or otherwise treated in a manner prescribed by rules and regulations of the director.

216.12. Every person subject to this article shall keep and maintain such records or memoranda and furnish such reports as the director by rules and regulations may require. Such records and memoranda shall be open to inspection by the director during usual business hours.

SEC. 2. This article shall become effective January 1, 1954, except as to the provisions of Section 216.11, which shall become effective July 1, 1955.

EXHIBIT NO. 40

A PROPOSED MEASURE, CALIFORNIA LEGISLATURE

SENATE BILL No. 1697

Introduced by Senators Hatfield and Hoffman

January 17, 1953

REFERRED TO COMMITTEE ON AGRICULTURE

An act to add Article 2b to Chapter 3 of Division 2 of the Agricultural Code, relating to sanitary facilities surrounding the feeding of garbage to swine.

The people of the State of California do enact as follows:

SECTION 1. Article 2b is added to Chapter 3 of Division 2 of the Agricultural Code, to read:

Article 2b. Feeding of Garbage to Swine

216. It is the purpose of this chapter by the exercise of authority of the State and its political subdivisions to better safeguard the public health and to promote and protect the swine industry through improved sanitation and cleanliness surrounding the production of a valuable meat (food) supply for the growing population of this State. In two respects this may be better accomplished, namely, (1) through licensing of owners and operators of pork producing ranches utilizing garbage as a feed source to insure greater wholesomeness in this human food source, and (2) through a determination of the value of sanitation in correcting the spread of vesicular exanthema, a virus disease of swine, and of other diseases of porcine animals, thereby leading to cooperation with at least 32 other states, most of which are now cooperating with the Federal Government in a disease eradication campaign but threatened with a continuing source of vesicular exanthema from California, from which State the infections elsewhere in the Nation have been reported to have first originated. It is hereby declared to be the objective of this statute based on the findings of scientific research to ultimately require the processing of raw garbage fed to hogs to prevent the dissemination of vesicular exanthema through the medium of this feed supply in line with the declarations of federal and state livestock sanitary officials and of leading scientific and research authorities in animal disease transmission and treatment.

216.1. As used in this article, "garbage" means any waste material composed in whole or in part of meat, meat scraps or animal offal, regardless of place, method or incidence of origin.

216.2. This article does not apply to any individual who feeds garbage only from his own household to swine of his own production.

216.3. Institutions and agencies of the State or of a county or of any municipal or other public corporation feeding garbage to swine shall not be required to procure a license, but shall comply with all other provisions of this article and rules and regulations issued hereunder.

216.4. It is unlawful to feed garbage to swine without first procuring from the director an annual license for each separate premises where garbage is fed to swine.

216.5. Applications for such licenses shall be in the form prescribed by the director, and shall state the name and address of the applicant, the location of the premises for which the license is requested, and such other information as the director may require.

216.6. Each application for a license to feed garbage to swine shall be accompanied by a fee in an amount contingent upon the average number of hogs fed during the preceding calendar year. For an average number of 100 or less hogs the fee shall be twenty-five dollars ($25); for an average number between 100 and 1,000 hogs the fee shall be fifty dollars ($50); and for an average number of 1,000 or more hogs the fee shall be one hundred dollars ($100). Application for renewal of a license shall be made on or before the last day of the calendar year for which the license was issued. To any fee not paid when due, there shall accrue and be added a penalty of twenty-five dollars ($25). Any moneys derived under the provisions of this article shall be paid into the State Treasury to the credit of the Department of Agriculture Fund, to be used for carrying out the provisions of this article.

216.7. Each license issued under the provisions of this article shall entitle the licensee to feed garbage to swine on the premises described therein, during the calendar year for which the license is issued, in accordance with the provisions of this article and rules and regulations issued hereunder, and in compliance with local and municipal ordinances applicable to the feeding of garbage to swine.

216.8. The director may refuse to issue a license or renewal of license, and may revoke or suspend any license, as the case may require, when he finds, after hearing, that the premises described in the application or license are not operated in a clean and sanitary manner, are not adequately equipped or maintained in the manner required by the provisions of this article or rules and regulations issued hereunder, or that the applicant or licensee has violated any of said provisions or any lawful order of the director. The proceedings for all hearings under the provisions of this article shall be conducted in accordance with Chapter 5 of Part 1 of Division 3 of Title 2 of the Government Code, and the director shall have all the powers granted therein.

216.9. The director may make and enforce such rules and regulations as he may deem necessary to carry out the provisions of this article. He may enter any premises where garbage is fed to swine and may inspect same to determine that sanitary requirements are being complied with and may examine and test any facilities for handling garbage. He may in writing order any person subject to this article to cease the operation of any facility which he finds unsuitable or improperly operated or maintained or if operated in an insanitary manner.

216.10. Every person subject to this article shall keep and maintain such records or memoranda and furnish such reports as the director by rules and regulations may require. Such records and memoranda shall be open to inspection by the director during usual business hours.

SEC. 2. This article shall become effective January 1, 1954.

EXHIBIT NO. 41

REQUEST FOR FEDERAL ACTION BY CALIFORNIA LEGISLATURE

AMENDED IN SENATE MARCH 11, 1953

SENATE JOINT RESOLUTION No. 10

Introduced by Senators Hoffman and Hatfield

January 14, 1953

REFERRED TO COMMITTEE ON AGRICULTURE

Senate Joint Resolution No. 10—Relative to vesicular exanthema in swine and memorializing the Congress of the United States in relation thereto.

WHEREAS, Since June, 1952, the serious virus disease of swine known as vesicular exanthema did spread to 32 states, demonstrating the highly contagious character of the malady; and

WHEREAS, It became necessary for the Secretary of Agriculture to declare that the existence of this disease created an emergency condition such as to warrant rapid and complete cooperation between the United States Bureau of Animal Industry and State Livestock Sanitary Officials in an effort to eradicate such disease by destruction of infected and exposed animals and indemnifying the owners thereof; and

WHEREAS, Veterinary scientists and virus disease authorities have stated that greatly extended research is vitally necessary in order to develop ways and means of suppressing or treating such infections without slaughter and indemnification; and

WHEREAS, The recommendations of the aforesaid veterinary medical authorities point to the effectiveness of prohibiting the feeding of raw garbage, although better and more economical methods need to be devised; and

WHEREAS, The swine raising industry even now is faced with a critical shortage of hog cholera serum due to curtailment of serum production as a result of vesicular exanthema infection among swine herds of the Middle West; and

WHEREAS, Unless certain of these problems are solved vesicular exanthema will constitute a constant threat to the hog-raising industry of the Nation with serious attendant losses; now, therefore, be it

Resolved by the Senate and the Assembly of the State of California, jointly, That the Legislature of the State of California calls to the attention of the Congress of the United States the seriousness of this virus disease of swine and does, therefore, recommend that provision be made for an intensification of research by the United States Bureau of Animal Industry, both through its own facilities and in cooperation with state animal disease research agencies, on methods directed toward solving the problems associated with the elimination or treatment of the vesicular exanthema disease of swine, and that adequate funds be provided the Bureau of Animal Industry for such purpose; and be it further

Resolved, That the Secretary of the Senate is directed to transmit copies of this resolution to each Senator and Representative from California in the Congress of the United States.

PART III

THE UNIVERSITY OF CALIFORNIA REPORTS ON VESICULAR EXANTHEMA AND GARBAGE

The Dean of the College of Agriculture, University of California at Davis, appointed a committee to study and report on garbage feeding of swine. The members of this committee were:

Hubert Heitman, Jr., Chairman	S. M. Henderson
	Jacob Traum
Harold B. Gotaas	Wallace Sullivan

The report of said committee, dated November 21, 1952, is included herewith and represents the extent of information available from the university on this subject at the time of release.

At the request of the Chairman of the Joint Legislative Committee on Agriculture this university report and proposed research program and budget was submitted to the California Farm Bureau Federation, the League of California Cities and the Western Meat Packers Association for their critical analysis and comment. These organizations complied with said request and their comments are contained herein immediately following the report of the university.

Attention is also directed to a report prepared by university representatives on a garbage cooking plant in Omaha, Nebraska. This report is contained as Exhibit No. 28 (supplement) herein.

REPORT OF THE COMMITTEE ON GARBAGE FEEDING OF SWINE APPOINTED BY THE DEAN OF THE COLLEGE OF AGRICULTURE, UNIVERSITY OF CALIFORNIA, DAVIS

The committee has studied in detail the information available on garbage feeding of swine. This report will be divided into two general sections as follows—first, the status of our knowledge will be summarized, and second, a suggested research program will be outlined which could contribute important information to our present knowledge.

Summary of Findings

Information has been summarized which indicates that raw garbage feeding is responsible for increasing the incidence of certain diseases in swine. It is logical to anticipate that if garbage is properly treated by heat or some other means that the incidence of these diseases would be almost eliminated. Whether or not processing garbage would eradicate the diseases is not known.

Even though such equipment is not commercially available in the United States at present, no doubt any demand for equipment to cook or otherwise process garbage under specified conditions would result in the development of it. From a commercial aspect equipment for large scale processing would be needed if the processing of garbage should be required. From small garbage feeders' standpoint the cost of operation of a small plant will be the problem.

Cooking or processing garbage lowers the feed value depending upon the amount of processing and upon the quality of garbage. Military and No. 1 garbages (hotels, restaurants, hospitals) will be relatively less affected by such processing than poorer quality garbages, such as No. 2 garbage (residential). Cooking of poor quality garbage may not be economical. Dried or dehydrated garbage is not as palatable and cannot be used as the main portion of the diet as can raw or cooked garbage. Maximum usage would probably be as 25 to 35 percent of the ration, and even then it is not worth as much as a grain ration.

The question of economics has only been touched lightly. It is difficult to predict whether or not all garbage-feeding establishments in California can continue to show profits if they must feed cooked or processed garbage.

If all garbage for swine feeding is to be processed, it will mean that garbage feeding equipment will need to be redesigned to some degree.

Garbage Feeding of Swine and Its Improvement [1]

It is considered that the improvement of garbage feeding revolves mainly around cooking or otherwise processing garbage for disease control reasons. This assumption is based upon the incidence of vesicular exanthema in swine in California and its recent spread to 28 other states (Duckworth, 1952) which has been coincident with demands within the State for legislation against the feeding of raw garbage.

If this thesis is correct, the problem of garbage feeding improvement lies in three fields. There are:

(1) Disease control—will the cooking or other processing of garbage render it "safe" and lower the incidence of certain diseases.

(2) Engineering—can garbage be properly processed in large quantities.

(3) Livestock management—what is the feeding value of processed garbage and how does it compare with garbage in the raw or "as collected" state.

The discussion will be reported under these general fields.

Disease Control. Feeding of raw garbage has been considered to be responsible for the introduction and spread of certain important diseases of livestock. A disease of great importance to the livestock industry and the entire agricultural economy of the Nation is foot-and-mouth disease (F.M.). The last two outbreaks (1924-1929) of F.M. which occurred in California have been clearly established as originating in swine which were fed raw garbage contaminated with food refuse removed from ships returning from the Orient and South America, respectively (Duckworth, 1952a; Mohler, 1938).

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[1] For bibliography of literature cited in this report see Appendix No. 15.

Vesicular exanthema (V.E.), which is clinically indistinguishable from F.M. is a disease of swine which is believed to be perpetuated by feeding of raw garbage (Shope et al, 1952, Duckworth and Traum, 1951). Although a considerable amount of work has been done with F.M. to prove and demonstrate that raw or insufficiently cooked or ineffectively processed meat and meat products of animals remain infectious for long periods of time, little or no work has been done to prove that the same conditions exist with V.E. There is, however, considerable circumstantial and epidemiological evidence to indicate that raw garbage is the purveyor for this infection. Evidence towards this belief is as follows:

(1) Of the 20,000 swine-raising establishments in California, about 400 ranches practice the feeding of raw garbage to swine. During the past 20 years we have had 1,351 outbreaks of vesicular exanthema, which were predominantly found on these 400 garbage-feeding establishments. Only 51 outbreaks have been found in the remaining 19,600 premises and in nearly all these cases the outbreaks have been attributed to the exchange of hogs or having a history of feeding garbage (Duckworth, 1952b).

(2) A study of the disease which has occurred on 40 grain-feeding ranches showed no instance of recurrence of the disease in such a herd after the disease had run its course and the hogs had recovered (Duckworth, 1952b).

(3) All initial outbreaks of vesicular exanthema which have occurred in California were initiated in hogs fed raw garbage (Duckworth, 1952b).

(4) As the population of Los Angeles County increased the hogs previously raised on raw garbage in the southern part of the county were moved to the region of Newhall where the same practices of raising hogs were continued but on new ground, concrete, and other facilities. These animals were fed raw garbage and within 12 months almost all of the new premises became infected with vesicular exanthema (Duckworth, 1952b).

Illustration No. 18

SPECIAL V.E. LABORATORY AT UNIVERSITY OF CALIFORNIA, DAVIS

Photo courtesy Dr. R. A. Bankowski, University of California at Davis.

Specially designed and constructed laboratory consisting of six individual units completely separated from each other and with necessary facilities to completely isolate the virus within the building. (Front view.)

Illustration No. 19

SPECIAL V.E. LABORATORY AT UNIVERSITY OF CALIFORNIA, DAVIS

Photo courtesy Dr. R. A. Bankowski, University of California at Davis.

Rear view shows large sterilizer. All material leaving the building is sterilized, special clothing is worn by personnel working within the building and each member is required to shower upon leaving the premises to prevent possible spread of the disease outside of these walls.

(5) Chart 1 shows that following the first few years in which V.E. was first reported that there has been a sharp increase in its incidence and that it appears persistent. A study of the statistical records of the California State Department of Agriculture shows that in 1950:

(a) 46 of the 58 counties in the State were engaged in garbage feeding of hogs and only three of these counties were free of the disease (Duckworth, 1952a).

(b) 20 counties which have 68.55 percent of the total state hog population [2] and are feeding raw garbage to 10 percent to 100 percent of the population within each county [3] show an incidence of the disease in these counties representing 86.32 percent of the reported total number of outbreaks within the State in 1950, and 88.79 percent of the total number of outbreaks from 1932 through 1951 (see Table 3).

Although the diseases of V.E. and F.M. have a predeliction for certain species of animals, both viruses appear, to a certain extent, to be related to each other in their biological behavior. Since a considerable amount of work has been done on F.M. it is safe to assume and permissible, to a degree, to use such data to predict the behavior of V.E. virus. It has been found that meat or other by-products of animals slaughtered during the acute stages of F.M. disease may be infectious, and feeding such uncooked products to susceptible animals obviously may induce infection (Mohler and Traum, 1942). Other facts that have been experimentally proven are:

(1) Results of studies by the British F.M. Disease Research Committee [4] indicated that carcasses of experimentally infected animals may give rise to infection for long periods of time. Guinea pigs killed during the height of infection, bled out, and held at 2 degrees-7 degrees C. showed that the blood of tissues around the neck remained infectious for 21 days of storage. Infected guinea pigs which were killed but not bled out showed that the blood remained infected 35 to 46 days; bone marrow contained the infectious agent for periods up to 96 days.

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[2] California Annual Livestock Report.

[3] Hog population (1950) (*) minus garbage-fed pigs (Duckworth, 1952a)—grain-fed pigs.

[4] Progress reports of the British Foot and Mouth Disease Research Committee, London.

TABLE NO. 3

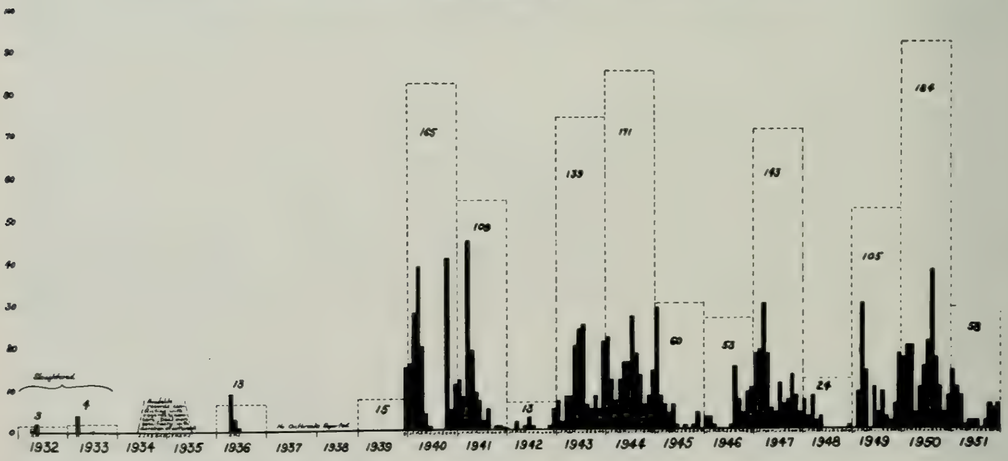
INCIDENCE OF VESICULAR EXANTHEMA IN 20 COUNTIES IN CALIFORNIA IN WHICH 10 PERCENT TO 100 PERCENT OF THE HOG POPULATION OF THE COUNTY IS FED RAW GARBAGE *

County	*Percent state hogs*	*Percent hogs fed garbage*	*Number hogs fed garbage*	*Percent total 1950 outbreaks*	*Percent total outbreaks 1932-'51*
Alameda	3.3	77.6	16,775	5.97	6.55
Contra Costa	1.6	44.2	4,561	4.34	4.62
Imperial	1.15	16.7	1,236	1.08	.46
Kern	3.2	21.0	4,407	2.71	1.15
Los Angeles	15.96	53.3	58,490	22.28	15.43
Mendocino	1.5	10.5	1,074	0.0	.07
Monterey	2.5	20.9	3,456	3.26	1.69
Orange	2.53	96.7	15,680	2.17	4.25
Riverside	3.29	44.5	9,394	1.08	1.46
Sacramento	1.8	34.2	4,039	2.71	1.15
San Bernardino	5.78	24.6	9,126	1.08	3.47
San Diego	5.18	75.2	24,908	13.58	7.48
San Joaquin	4.3	17.7	5,080	8.69	6.25
San Luis Obispo	1.1	37.6	2,747	0.0	.92
San Mateo	4.3	100.	28,690	12.50	25.07
Santa Clara	2.0	43.1	5,568	1.08	4.62
Sonoma	2.1	31.2	4,275	.54	.69
Stanislaus	1.9	18.4	2,312	2.17	1.62
Tulare	2.8	10.0	1,843	0.0	.92
Ventura	2.26	63.1	9,150	1.08	.92
Total (Number = 438,720)	68.55		212,811†	86.32	88.79

* Based on total hog population of 1950 and garbage-fed hogs (Duckworth, 1952a).
† Percent of total state hogs fed garbage = 33.25 percent.

CHART I

NUMBER OF OUTBREAKS OF VESICULAR EXANTHEMA IN CALIFORNIA, PER MONTH 1932 Through 1951



Solid black bars = number of outbreaks of V.E. per month.
Dotted bars = number of outbreaks of V.E. per year.

(2) In other experiments with hogs, the virus of F.M. was found 42 days later in bone marrow whether chilled or treated by wet salt process. When held at freezing temperatures, the virus was viable for 76 days.

Assuming the similarity of behavior of these two viruses, an insight of the relative resistance of V.E. virus can be obtained from the following data:

(1) F.M. disease virus has been found to be inactivated in the form of a clear virus suspension (vesicular fluid) at 55 degrees C. in 15 to 40 min. However, in the form of vesicular coverings and milk, the temperature requirements

to inactivate the virus in 15 minutes must be increased to 60 degrees-70 degrees C. Temperatures of 80 degrees to 100 degrees C. required two to five minutes to kill the virus in various media. The higher temperature (100 degrees C.), however, was found to be effective immediately (Levaditi et al., 1943).

(2) Agar and gelatin were found to be favorable for the preservation of F.M. virus, and virus suspensions containing them remained viable at room temperature for seven days (Olitsky et al., 1928).

(3) Fragments of F.M. vesicular coverings of the tongue of cattle when mixed with hay and kept in the stall were found to be infective after 30 days which was the longest period tested (Olitsky et al., 1928).

(4) The virus of F.M. survives in earth for long periods of time. Experiments were done in which a suspension of virus was mixed with earth and was found to be still infectious 25 days later (Olitsky et al., 1928).

It is evident from the above data that the biologically similar virus of F.M. disease is not readily inactivated by heat, environment, and processing when found in tissues, meat scraps, or body fluids. Because of the resistance of the virus to inactivation, cooking or processing of infected feedstuffs for swine to render it safe will require maximum temperatures. The conditions offered by the State and Federal Agricultural officials on July 16, 1952, in an attempt to inactivate V.E. virus in all garbage, slaughterhouse and butcher shop waste intended for use as animal feed, required heating *throughout* the mass at a minimum temperature of 145 degrees F. for not less than 30 minutes. Studies conducted by the National Institute of Public Health, Public Health Service, established that for practical purposes disinfection at a temperature of 212 degrees F. in a fluid consistency for a 30-minute period was necessary to obtain a temperature of 145 degrees F. in pieces of pork up to 3 inches thick (Long and Johnson, 1952).

In the event that garbage is successfully treated before feeding to swine, eradication of V.E. will not be immediate. Experience with F.M. indicates that within a comparatively short time after an outbreak has subsided or after all infected animals have been removed, the virus disappears rapidly. Residual virus, however, may remain in dark, damp areas for a long time, hence it is very necessary to thoroughly clean and disinfect premises where infection has existed before they are restocked with susceptible stock (Hagan and Bruner, 1951).

Other diseases of livestock and man which can be materially reduced or eradicated are:

(1) *Trichinosis.* The U. S. BAI and the U. S. Public Health Department have shown that feeding of raw garbage results in a higher percentage of trichinosis and infested carcasses (Hall, 1937; McNaught and Zapata, 1940). Surveys throughout the United States on the diaphragms of human cadavers show that the percentage of human infection is generally 16 percent, and in one particular study an infection rate of 27.6 percent was found (Queen, 1931; Sawitz, 1938; Ker et al., 1941). Cooking garbage at temperatures suggested for inactivating V.E. is sufficient to destroy the larvae of this parasite according to studies made by personnel of the U. S. Public Health Service and the U. S. BAI (Wright and Bozecevich, 1943; Schwartz, 1952). The parasite *Trichinella spiralis*, as a result of recent experimentation, was shown to be an intermediate and transmitting host for another virus disease of man, lymphocytic chorio meningitis, however, proof that this occurs in nature is not substantiated (Shope et al., 1952). The virus of swine influenza on the other hand, has been shown to be transmitted by the intermediate host—the swine lung worm (Shope, 1941).

(2) *Hog Cholera.* This disease continues to be one of the important diseases of swine in the United States. One of the big factors in perpetuating the disease is the use of live virus vaccines and its spread through fresh pork, the trimmings of which often find their way back to swine in raw garbage. The heavy costs of this disease and the expense of combatting this infection with biological agents warrants another approach. Replacing the use of virulent live virus vaccines with the more recent attenuated vaccines or hyperimmune sera and requiring cooking of all garbage fed to swine would go far and contribute markedly in controlling this disease (Hagan and Bruner, 1951). Such practices have been successfully used in Canada for many years and in Germany before World War II.

(3) Brucellosis, tuberculosis, parasitism, and other diseases of lower incidence in livestock and which may be transmitted by garbage may be further curtailed or eliminated by the proper processing of garbage used as a source of feed.

Engineering. It may be possible to render garbage "safe" by cooking, dehydration, chemical, or other means, but the efficacy of each method must be proven.

Most attention has been given to cooking (Long and Johnson, 1952; Wright, 1943) and some to dehydration. A survey of various available processing equipment led the committee to conclude that none is at present being manufactured in this Country suitable for large scale processing of garbage. Some correspondence from England has not yet been received and may give us information on equipment in other countries. It is concluded, however, that it would only be a question of time until suitable equipment would be developed and available if the demand for it existed.

Garbage may be cooked or sterilized by the following methods (Long and Johnson, 1952). Published design and operating data are meager, so it is not possible to detail a specific plant or estimate its performance characteristics, except in a general way. Engineering principles, however, permit certain estimates which are included in the discussion.

(1) *Direct-fired open kettle.* An open vat is heated by an open flame. Water would have to be added to the garbage prior to heating to minimize burning, and frequent stirring would be necessary. The cost would be nominal since used steel boilers, hot water tanks, etc., could be utilized. This method would not be recommended for large operations, i.e. over ¾ ton cooked per day.

(2) *Steam-injection.* Steam is introduced into the mass of garbage, essentially in an open kettle with permanent or removable live steam jets in the bottom. Stirring of the mass would not be necessary unless the steam distribution was poor. Since the steam used for cooking would condense in the cooking mass, approximately one-half pound of water would probably be added for each pound of raw cabage. A five-ton capacity plant would require a 200 cubic foot cooking container, a 40-horsepower boiler and the cooking process would require approximately two hours, not including preparation of the raw material or cooling the cooked product. The estimated costs, containers (with a drip-proof bottom gate or craddled to pour to empty), $1,500, boiler, $3,000, installation, other labor, miscellaneous $1,500. Since the product would be highly fluid, feeding troughs for the hogs would be needed.

(3) *Steam-jacketed Kettle.* An open kettle is heated externally with steam. Kettles used for large scale food cooking could be used. Continuous agitation to minimize sticking and insure uniform heating would be necessary. The cooked product would contain less moisture than the original raw product. Available kettles of this type are stainless steel. A 300-gallon (1 ton garbage) kettle with agitation would cost from $2,500 to $3,000. The cost, if made of alloy steel, would be considerably less. The boiler, 10 horsepower, would cost $1,200. The total batch time is estimated to be 2½ hours. The cooked product would be semifluid; feeding troughs would probably be required.

(4) *Continuous-flow Cookers.* Steam heated cylinders with screws which move the material through the cylinder are used for cooking dog and cat foods and various meat products. Since the cooked product would be mixed vigorously, good heat transfer would be provided, and with a temperature somewhat above 212 degrees F. possible, high capacities could be expected. Insufficient data are available to provide capacity estimates. Although the initial cost would be high, the cost per processed ton would probably be nominal. This system is recommended for consideration where large daily quantities are to be processed.

(5) *Pressure Cookers (retorts).* The material is placed in a steam tight container and is cooked under steam pressure with agitation. Since a high temperature can be produced, processing would be quick and thorough. Bones would be softened. The quality of the cooked product would probably be reduced because of the vigorous cooking treatment. A plant of this type complete with housing, processing, control and miscellaneous equipment to process 50 tons per day cost $59,500 in Great Britain in 1951. This plant operates under very low pressure. In 1950-51, it cost about $3.62 per ton to process garbage, including rent, insurance, maintenance, labor, etc. Garbage was purchased at an average price of $7.70 per ton, and the cooked product was sold for approximately $18 per ton. Considering that the cooked yield was 78 percent the cost of one ton of cooked garbage was about $14.50.

Sundries. Formal studies will be required to determine the minimum practical heat-up time, the proper sorting equipment and procedures (if needed), the most suitable cooked material handling, the best cooking time and temperature program, the requisite controls and indicators to insure adequate sterilization, etc. The equipment design and cooking program will be further affected by the acid level of the cooking material, the effect of bones on the process, and the storage life of the cooked material. The total actual cost of a specific installation and the cost per processed ton will depend materially upon the final answers to these questions.

Livestock Management. Even though garbage has been fed for years in large quantities, relatively little information has been published concerning its use. Over a period of the last 20 years, there has been an increasing amount of information on its feeding value. Some analyses of garbage and some of its processed forms are given in Table 4. It must be remembered in using any such data that composition alone is not the entire story of feeding value. Palatability, bulk and absence of any toxic materials contribute to feed value. In Table 2 some analyses have been converted to the dry basis as it is easier to compare them on that basis with the content of standard feeds containing little moisture. The level of crude or digestible crude protein on a dry basis is usually greater than that found in barley but decidedly less than that of a high protein supplement such as meat scraps or cottonseed meal. The value for total digestible nutrients on a dry basis compares favorably with that of barley. The fiber content on a dry basis is higher than that of rice bran except for higher quality garbages, such as military and English garbages, which are characterized by lower levels of fiber. Most of the garbages are characterized by high fat levels, containing higher levels of ether extract than rice bran and about the same amount as soybeans or acorns on a dry basis.

The results of Table 4 indicate that garbage is a valuable feed from an analyses standpoint. With 60 to 70 percent, or more, moisture, however, garbage is a bulky food. Added to this is a relatively high fiber content of many garbages which also increases the bulkiness. On the other hand, garbage apparently is very palatable.

Swine easily consume 20 pounds per day average from 30 to 200 pounds live weight, and heavyweight hogs can eat several times this much (Hughes, 1951).

The fat content of garbage tends to produce carcasses which are soft (Hughes and Ittner, 1950). It has also been said that garbage-fed hogs shrink more upon shipping and having a dressing percentage about 3 percent lower than grain-fed hogs (Conti, 1930). The carcasses, however, provide meat of very acceptable quality (Hunter, 1919).

It has been observed (Guyselman, 1940) that cooking lowers the feeding value of garbage. Some results of feeding trials are available. It was demonstrated over 30 years ago at New Jersey (Hunter, 1919) that cooking garbage lowered the feed value about 9 percent on the basis of food utilization (see Table 5). Rate of gain was about 12 percent slower. California experiments (Hughes, 1951) have confirmed the New Jersey work (see Table 6). In every case raw garbage-fed hogs gained more rapidly than those fed cooked garbage. The difference averaged about the same as in the New Jersey experiments. The most recent work reported is that of Willett and Associates (1948) in Hawaii. These results are summarized in Table 5. There is little difference in this work between lots, but it will be noted that the difference, though small, is in the same direction. The garbage used was military and of very good composition (Table 4), and Ashbrook and Wilson (1923) have pointed out that carefully graded garbages (such as military) are affected less by cooking. Besides the possibility of actual nutrient destruction, cooking takes away from the pig his powers of selection. This might be very important if cooking of low quality garbages is practiced (Ashbrook and Wilson, 1923).

The Hawaii work demonstrated actual nutrient destruction in dried garbage (Willett et al, 1948). Feed-

TABLE NO. 4

COMPOSITION OF GARBAGE AND SOME COMMON SWINE FEEDS

									Coefficients of digestibility			
	Dry matter	*Digestible crude protein*	*T.D.N.*	*Crude protein*	*Ether extract*	*N.F.E.*	*Crude fiber*	*Ash*	*Crude protein*	*Ether ex-tract*	*N.F.E.*	*Crude fiber*
1. No. 2 fresh garbage (Los Angeles)	24.3	--	--	4.3	4.5	9.2	3.6	2.7	--	--	--	--
2. No. 1 fresh garbage (Los Angeles)	24.9	--	--	4.6	5.2	10.1	3.0	2.1	--	--	--	--
3. Cafeteria fresh garbage (Univ. of Hawaii)[1]	26.6	--	--	4.3	8.9	11.8	.8	.8	--	--	--	--
4. Concentrated cooked summer * swill (England)[2]	30.0	3.3	24.3	4.9	3.7	15.0	2.9	3.6	67	80	88	38
5. Concentrated cooked winter § swill (England)[3]	31.9	2.9	28.1	4.7	3.8	18.5	1.8	3.1	61	77	96	57
6. Military garbage (Hawaii)[1]	30.1	--	--	6.5	9.0	12.4	.6	1.7	--	--	--	--
7. Military garbage † (England)[3]	31.4	5.8	38.8	6.4	8.9	13.7	.5	1.9	90	96	99	69
8. Lyman chemically processed garbage (Los Angeles)	37.6	3.2	29.9	6.3	7.8	15.3	3.5	4.7	51	87	63	49
9. Dried garbage (Los Angeles)	89.1	7.6	70.7	14.8	18.8	33.7	10.3	11.6	51	87	63	49
10. Dried balanced swill ‡ (England)[3]	89.7	18.7	61.7	24.8	11.0	29.8	7.8	16.4	76	81	65	47
11. Processed garbage (low fat)[4]	92.3	8.3	57.9	23.1	3.5	38.1	13.5	14.1	--	--	--	--
12. Processed garbage (high fat)[4]	95.9	6.3	85.5	17.5	23.7	21.8	20.0	12.9	36	82	82	88
13. No. 2 fresh garbage (Los Angeles)—dry matter basis	100	--	--	17.6	18.5	38.0	14.7	11.2	--	--	--	--
14. No. 1 fresh garbage (Los Angeles)—dry matter basis	100	--	--	18.4	20.8	40.4	12.1	8.3	--	--	--	--
15. Concentrated cooked summer swill * (England)[2]—dry matter basis	100	10.9	80.6	16.4	12.4	49.6	9.7	11.9	67	80	88	38
16. Concentrated cooked winter swill § (England)[3]—dry matter basis	100	9.0	88.3	14.7	11.8	57.9	5.7	9.8	61	77	96	57
17. Military garbage † (England)[3]—dry matter basis	100	18.4	123.7	20.4	28.5	43.6	1.6	6.0	90	96	99	69
18. Meat and bone scraps (50% protein grade)[4]	93.9	41.8	64.6	51.0	10.1	1.6	2.1	29.1	82	97	--	--
19. Rice bran[4]	90.9	8.5	67.0	12.5	13.5	39.4	12.0	13.5	68	83	76	28
20. Cottonseed meal (43% protein grade)[4]	92.7	36.4	75.8	43.9	7.1	26.3	9.0	6.4	83	97	76	43
21. Barley, Pacific Coast[4]	89.8	6.9	78.7	8.7	1.9	70.9	5.7	2.6	79	80	92	56

* Main ingredients—Peapods, bread, and cabbage leaves and stalks, with small, but recognizable quantities of peas, beetroot peelings, carrots, lettuce, runner beans, carrot tops, potato peelings, and a few potatoes.

§ Main ingredients—Potato peelings, bread, and cabbage leaves, with small, but recognizable quantities of swede peelings, tomatoes, pudding, carrots, radishes, turnip tops, celery, leeks, and bacon rind.

† Main ingredients—Waste meat and bone, bread and pudding, bacon, cheese, vegetables including potatoes and peelings, carrots, onions, beetroot, marrow, swede and peelings, some cabbage leaves and beans.

‡ Main ingredients—Manufacturer stated contents were 25 percent pea pods, 65 percent cabbage leaves, 5 percent potatoes, and 5 percent of a mixture of bread, meat scraps, bones and fish waste.

Analyses are those of the California Experiment Station, except as follows:

[1] Willett, et al., 1948.

[2] Woodman and Evans, 1944.

[3] Woodman and Evans, 1942.

[4] Morrison, 1948.

ing trials bear out this loss of quality. California experiments (Hughes, 1951) show that inclusion of dried or dehydrated garbages in the ration of swine affects markedly the gain and feed utilization (see Table 7). Dried garbage alone was very unsatisfactory and amounts over 25 percent of the ration usually were uneconomical. English work supports the observation (Woodman and Evans, 1942). Even though the digestible crude protein content was high, inclusion of more than 35 percent of a dried balance swill affected swine performance. This was due in part to a total digestible nutrient content of less than wheat bran (Table 4). Work at a variety of experimental stations (Minkler, 1914; Evvard et al, 1925; Weaver, 1927) have shown that various dehydrated garbages, garbage tankage, table scrap meal, etc., can only be used successfully as supplements, not as the primary constituent of the ration.

It has been stated that soap, coffee grounds, tea leaves, rhubarb, soda, salt, acids in fruit skins, spoiled products, etc., are injurious in garbage (Ashbrook and Wilson, 1923; Fishwick, 1941) and, for this reason as well as removing items of low or no food value, it is important to sort garbage well, preferably at the source (Lovatt et al, 1943). All of these items are not serious, however, and Allen (1919) has shown that citrus rinds, cooked or raw, are noninjurious. Recent work indicates that salt poisoning of swine is unlikely (Grummer & Meyer, 1947).

TABLE NO. 5

RAW VS. COOKED GARBAGE

(Hunter, 1919)

* *Ration*	*Av. total gain per pig, lbs.*	*Total consumed per pig*		*Total consumed per 100 lbs. gain*	
		Garbage, lbs.	*Grain, lbs.*	*Garbage, lbs.*	*Grain, lbs.*
Cooked garbage ______	165	4,022	___	2,437	___
Raw garbage _______	189	4,249	___	2,244	___
Raw garbage plus grain, last 40 days_	220	2,936	292	1,335	133
Raw garbage plus 1 percent shelled corn	258	4,238	282	1,643	109
Grain ration (corn, middlings, tankage)	212	___	862	___	407

* Ten pigs per lot, averaging 30 pounds initial weight, fed for 210 days.

COOKED VS. RAW MILITARY GARBAGE *

(Willett et al., 1948)

	Cooked garbage †	*Uncooked garbage*
	Duration, days—89	
Pigs ________________________	12	12
Average initial wt., lbs.__________	88	89
Average daily gain, lbs.__________	1.35	1.41
Average daily ration, lbs.		
Garbage ___________________	12.0	11.8
Grain ______________________	0.3	0.3
Feed consumed per 100 lbs. gain		
Garbage, lbs. ________________	888	842
Grain, lbs. __________________	23	18

* Average of three trials.
† Water added to prevent boiling, allowed to boil 30 minutes.

TABLE NO. 6

COOKED VS. RAW GARBAGE

(Hughes, 1951)

Trial No.	*Type of garbage*	*No. pigs*	*Days of trial*	*Av. initial gain lbs.*	*Av. daily gain lbs.*	*Feed per 100 lbs. gain lbs.*
1	Cooked ____	100	92	73	0.55	____
	Raw _____	95	92	74	0.66	____
2	Cooked ___	74	90	93	0.60	5,987
	Raw _____	75	90	93	0.76	4,692
3	Cooked ___	75	90	95	0.93	Garbage 1,911 Grain 222
	Raw _____	75	90	96	1.02	Garbage 1,745 Grain 206
4	Cooked ___	10	133	68	0.99	Garbage 1,146 Grain 259
	Raw _____	10	133	68	1.05	Garbage 1,293 Grain 243
5 *	Cooked ___	10	124	79	0.87	Garbage 1,035 Grain 275
	Cooked ___	10	124	80	0.97	Garbage 1,104 Grain 269
	Raw _____	10	124	77	1.03	Garbage 1,058 Grain 245
6	Cooked ___	5	98	73	1.05	Garbage 219 Grain 307
	Raw _____	5	98	73	1.21	Garbage 184 Grain 268

* This group received a grain supplement containing barley, fishmeal, middlings, and molasses whereas the other cooked group was fed only barley and fishmeal in addition to garbage.

Research Program

Research needs in the general field of garbage processing and feeding are expensive. The committee has developed the following program of suggested research to emphasize the information needed by the garbage-feeding industry. It is not intended to be a recommendation that it be carried out in full by the California Experiment Station because it is considered beyond the scope of the committee to recommend research to various departments.

The research referred to previously in this report fails in many cases to describe the product and the method of cooking or processing. For example, an experiment with "cooked garbage" indicated a certain performance with swine, but there was no information that the cooking treatment was sufficient to destroy any infectious organism that it might have contained. There seems to be little doubt that the longer garbage is cooked, the greater will be its loss of food value.

Engineering. This phase involves the construction and operation of a pilot plant wherein different methods of cooking can be tested and where different cooking conditions can be maintained. Facilities for hand sorting are included to provide opportunity for testing garbages of different degrees of segregation. The cost estimate (included in Table 8) is based on the handling of one ton of garbage daily, 75 percent of which would be processed.

Animal Husbandry. The livestock portion of the project would consist mainly of feeding the various processed garbages prepared by the pilot plant. These would be compared with the same product in the raw state and various supplements would be tested. It is

TABLE NO. 7

DRIED GARBAGE FEEDING TRIALS

(Hughes, 1951)

Trial No.	*Ration*	*No. pigs*	*No. days*	*Average initial gain lbs.*	*Average daily gain lbs.*	*Feed per 100 lbs. gain lbs.*
1	25% Dehydrated garbage * 75% Barley	20	60	111	1.15	617
	100% Barley	20	60	110	1.48	524
2	35% Dehydrated garbage * 65% Grain mix	20	60	93	1.22	501
	50% Dehydrated garbage * 50% Grain mix	20	60	93	1.15	529
	65% Dehydrated garbage * 35% Grain mix	20	60	93	1.02	582
3	Grain mix	75	24	118	1.61	441
	Processed garbage †	75	24	117	0.21	2,400
4	80% Dehydrated garbage 15% Ground wheat 5% Skim milk	10	30	91	0.13	3,800
	90% Dehydrated garbage 5% Alfalfa 5% Skim milk	10	30	91	0	----
	80% Dehydrated garbage 15% Ground wheat 5% Alfalfa	10	30	89	0	----
	75% Dehydrated garbage 5% Alfalfa 5% Dry whey 15% Ground wheat	10	30	89	0	----
	75% Dehydrated garbage 5% Skim milk 5% Alfalfa 10% Ground wheat	10	30	90	.06	6,200
	65% Dehydrated garbage 10% Molasses 5% Skim milk 5% Alfalfa 15% Ground wheat	10	30	89	.45	1,155
5	Garbage tankage	10	30	74	—0.27	----
	Mixed grain ration	10	30	74	1.15	487
	54.6 garbage tankage	10	30	74	.57	1,294
6	Balanced ration	10	133	69	1.09	486
	Balanced ration plus 25% Chicago dry garbage	5	133	70	.83	630
	Balanced ration plus 50% Los Angeles dry garbage	10	128	70	.47	795
	Balanced ration plus 25% Los Angeles dry garbage	10	133	66	.88	513
7	Balanced ration	10	124	84	.94	515
	Balanced ration plus 25% Chicago dry garbage	8	124	73	.68	645
	Balanced ration plus 50% Lyman's No. 2 garbage	10	124	80	.15	2,080
	Balanced ration plus 50% Lyman's No. 1 garbage	10	124	82	.37	1.100
	Balanced ration plus 25% No. 2 dried garbage	10	124	78	.87	601
	Balanced ration plus 25% No. 1 dried garbage	10	124	80	.82	620
8	Balanced ration	10	115	69	1.31	428
	Balanced ration plus 25% No. 1 dried garbage	10	115	69	1.20	471
	Balanced ration plus 25% No. 2 dried garbage	10	115	69	1.16	487
	Balanced ration plus 20% No. 2 and 5% No. 1 dry garbage	10	115	68	1.18	480

* Empro (at time cost was same as barley).
† Moreton (at time cost was about 50 percent of barley).

necessary to provide facilities for both the cooked and raw garbage fed lots, and one should be isolated from the other because of disease factors. Individual feeding would be practiced because of its economy of animals and dependability of results (Crampton, 1930).

Veterinary Medicine. The demands on this phase are perhaps the most varied. From a processing standpoint we need more information on the thermal death point of V.E. virus and its viability under varying conditions. Once the proper processing conditions are defined, it will be necessary to measure the efficiency of them by testing the various processed garbages for the presence or absence of V.E. Facilities at hand will permit this only at the expense of curtailment of other work.

Illustration No. 20

ISOLATION UNITS IN SPECIAL LABORATORY, UNIVERSITY OF CALIFORNIA, DAVIS

Photo courtesy Dr. R. A. Bankowski, University of California, Davis

Central hallway of the special laboratory. Shows entrances to the individual isolation units. Each unit is provided with separate rain gear which is worn over the special clothing as added precaution to prevent spread of the virus between the units. A 2 percent lye solution is used freely as a disinfectant for boots, coat and gloved hands before entering and upon leaving the units.

The cost estimate of this project is presented in Table 8. It includes the engineering, animal husbandry, and veterinary medicine phases. The estimated cost is $89,458, of which $27,225 is an annual operating cost.

TABLE NO. 8

ESTIMATED COST OF GARBAGE FEEDING PROJECT

	Cost of first year	*Annual operating cost*
Buildings:		
Isolation quarters for veterinary study	$35,000	---
Pilot Plant structure	7,250	---
Cooked garbage feeding shed (30 pigs)	7,500	---
Raw garbage feeding shed (10 pigs)	2,500	---
Fencing around experimental areas	2,500	---
Equipment:		
Boiler, 10 hp, 100 psi, automatic	1,250	---
Scales—animal, feed—hoist	1,825	---
Cooker—steam jacket, stirer	300	---
Electric hoist	450	---
Refrigerator and freezing box	750	---
Analytical grinder	500	---
Miscellaneous	1,908	$700
Experimental animals (220 pigs per year) *	3,900	3,900
Labor:		
Operation of pilot plant	2,500	2,500
Laboratory assistance	5,000	5,000
Animal caretakers	6,000	6,000
Feed, including garbage	8,250	8,250
Transportation and trucking	375	375
Construction and connection of septic systems	1,200	---
Miscellaneous—fuel, repair	500	500
	$89,458	$27,225

* Sale of a portion of the experimental animals would yield $4-5,000 per year depending on the length of feeding period.

TABLE NO. 9

ESTIMATED COST OF VETERINARY PROJECTS, OTHER THAN THOSE CONNECTED WITH FEEDING

	Cost of first year	*Annual operating cost*
Building—isolation quarters	$35,000	---
Fencing of area	1,000	---
Equipment:		
Shovels, feed cans, buckets, etc.	488	---
Miscellaneous equipment and supplies	400	$400
Experimental animals:		
Swine (100 per year)	1,500	1,500
Cattle, horses, guinea pigs, hampsters, eggs	1,500	1,500
Feed	7,500	7,500
Personnel:		
1 veterinarian	6,000	6,000
1 laboratory assistant	4,000	4,000
1 animal caretaker	3,000	3,000
Travel expenses for epidemiological studies	500	500
Transportation and trucking	375	375
	$61,263	$24,775

Other Needed Research. In this report it has been indicated that V.E. is largely, if not completely, a disease of raw garbage-fed hogs. As has been pointed out, little is known concerning V.E. itself, and since its importance has increased the following additional research is indicated:

(1) Development of means of rapid identification of the V.E. virus and its differentiation into immunological types.

(2) Find a suitable host (other than swine) which is susceptible to all strains of V.E. virus.

(3) Need a source of virus other than swine to provide an adequate quantity for research.

(4) Vaccine studies (which require all of the above) are needed. All garbage hog feeders are demanding a V.E. vaccine.

These studies require an estimated initial outlay of $61,263 for the first year (Table 9) of which $24,775 is an annual operating expense.

CALIFORNIA FARM BUREAU FEDERATION ACTION TAKEN WITH REFERENCE TO PROPOSED VESICULAR EXANTHEMA AND GARBAGE FEEDING RESEACH PROGRAM OF THE UNIVERSITY OF CALIFORNIA[5]

Following is an excerpt from the minutes of a meeting on February, 1953, of the C. F. B. F. as forwarded to the Joint Legislative Committee on Agriculture and Livestock Problems by the Legislative Representative of the C. F. B. F. in accordance with a request therefor by the Joint Committee Chairman.

It will be noted that the Swine Department of the C. F. B. F. is in agreement with the proposed university program and budget (see page 96 of this report), but suggests three additions thereto:

(1) 10 percent increase over proposed budget for contingencies.

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[5] Comments submitted at the request of the Joint Legislative Committee on Agriculture and Livestock Problems.

Illustration No. 21

HARVESTING V.E. VIRUS, UNIVERSITY OF CALIFORNIA, DAVIS

Photo courtesy Dr. R. A. Bankowski, University of California, Davis

Personnel harvesting virus from the snout of a hog with vesicular exanthema within one of the units in the special laboratory.

(2) $5,000 increase for salary of full-time animal science specialist.

(3) $12,000 increase for salary, travel and expenses of one veterinarian to study under field conditions.

Research Program Reported by Committee on Garbage Feeding to Swine

Motion was made by Ernest Martini, seconded by Jack Arakelian and unanimously carried that

"The research program on vesicular exanthema and garbage feeding to swine as submitted in the 'Report of the committee on garbage feeding to swine as appointed by the Dean of the College of Agriculture, University of California, Davis' under date of November 21, 1952, be approved by this committee subject to the following supplementary recommendations:

"That in addition to the total sums of money provided for in Tables 6 and 7 of this report and in the amount of $202,721,[6] ($150,721) this committee feels that additional provisions requiring the appropriations of additional money be provided as follows:

"Inasmuch as the calculations used in the preparations of the research budgets on Tables 8 and 9 of the report heretofore referred to are calculated on an extremely narrow basis with no allowance whatsoever for errors or miscalculations in estimating costs and in view of the fact the entire research program might be seriously handicapped in the event adequate money was not available for purchase of equipment and for installation costs as well as for necessary operating expenses, the committee therefore recommends that the total figure of $202,721 ($150,721) be increased by a factor of 10 percent or by $20,272.10 ($15,072.10).

"In order to proceed with the research program as outlined in the report of the University of California, it apparently will be necessary to curtail almost entirely other work now being carried on by the Swine Department of the Animal Science Division of the University of California at Davis. The swine industry as represented by this committee feels it to be unadvisable and uneconomical to curtail this program now being carried on in its entirety. Therefore the committee recommends that a sum of $5,000 be added to the budget as outlined on Table 8, to provide for the salary of a full time animal science specialist whose services can be utilized to allow for continuation of more important experimental work now being carried on by the Swine Department of the Animal Science Division.

"One item which this committee feels to be of paramount importance is intensive research on the disease of vesicular exanthema in field observations of the behavior and trend of the disease in various areas and with different types of hogs. Therefore this committee recommends that a sum of $12,000 be added to the budget figures on Table 9 of the University of California report to provide for the salary, travel and expenses of one veterinary on a yearly basis to undertake a full time study in the field under practical conditions the behavior and trend of vesicular exanthema in swine."

There being no further business the meeting adjourned at 5.30 p.m.

Respectively submitted,
(signed) Ray Griffin
Acting Secretary

WESTERN STATES MEAT PACKERS ASSOCIATION COMMENTS UPON PROPOSED RESEARCH PROGRAM OF THE UNIVERSITY OF CALIFORNIA, DAVIS [7]

WESTERN STATES MEAT PACKERS
ASSOCIATION, INC.
604 Mission Street
San Francisco 5, California

March 20, 1953

Senator George J. Hatfield, Chairman
Joint Legislative Committee on Agriculture
and Livestock Problems
State Capitol, Sacramento 14, California

My Dear Senator: I have reviewed the report of the committee, appointed by the Dean of the College of Agriculture at the University of California, Davis, on Garbage Feeding of Swine. In reviewing this report I think that the committee has covered problems involved concerning vesicular exanthema disease in hogs. With respect to the budget which they have estimated for carrying out the garbage feeding project and the veterinary project, I am not qualified to state whether the budget and proposed operation of the garbage feeding project is correct or whether the proposed operations are the proper ones, or whether the amount of money which they estimate will be needed is proper. However, I do feel qualified to comment on the program and budget which they have estimated for research in view to finding a preventative vaccine for V.E. disease in hogs.

This estimated budget is just about what I expected would be set up, because the Division of Animal Industry of the State Department of Agriculture seemed to feel that the cooking of raw garbage is 99% of the answer to the eradication of V.E. disease in hogs in California, and they put very little emphasis on the veterinary project for developing a preventative vaccine. This same opinion is shared by those in charge of the Veterinary Division of the College of Agriculture at Davis. Therefore, in their setting up of a small experiment, with a very limited personnel of one veterinarian, one laboratory assistant, and one animal caretaker, means that there will be no concentrated effort to developing a preventative vaccine but it will be a small, prolonged project. We feel that there should be as much emphasis, if not more, put on the veterinary project for the development of a preventative vaccine as there is put on the garbage feeding project. We believe that the number of experimental animals, particularly the number of swine, should be increased, probably 50 percent, from that in the proposed project, and that there should be assigned three veterinarians, three laboratory assistants, and two animal caretakers, in order to give this project the real emphasis it needs to develop in the shortest space of time a preventative vaccine for this disease. This would mean an increase in cost of $20,000, making a total budget of $81,263, as compared to the proposed budget of $61,263.

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[6] The total $202,721 is erroneous in that it includes an amount of $52,000 which the university report (see page 96 herein) set aside as continuing costs after the first year. Therefore, the correct amount has been inserted in parenthesis by the joint legislative committee.

[7] Comments submitted at the request of the Joint Legislative Committee on Agriculture and Livestock Problems.

Inasmuch as it is problematical that a bill will be enacted by this Legislature to require compulsory cooking of garbage, and also if such a bill should be passed, there still would be two years before such a bill would become effective, and I think that every effort should be made in the coming two years, not only to develop the best system of cooking garbage, particularly in large units that would not only preserve most of the feed value that is in the raw garbage before cooking, but also a method by which the cost of such cooked garbage could be held to a reasonable price for utilization by producers of hogs in California.

This matter of eradicating V.E. disease in hogs in California is a serious one and the fact that the disease has now become of national scope means that the people of California will have a constant threat of having their supply of pork drastically reduced in the event that midwestern states have continuous outbreaks of the disease which will result in the passing of an embargo by the Federal Government against the transportation of these hogs into the State.

We slaughter over 2,000,000 hogs a year in this State, of which California only produces 300,000; therefore, we must import 1,700,000 hogs per year. We also import into this State cuts of fresh pork and cured pork products whose dressed-weight converted into liveweight of hogs is equivalent to about 1,500,000 hogs. Therefore, you can see that the 11,000,000 people in this State consume yearly the equivalent of about 3½ million hogs of an average weight of 200 to 225 pounds each. If an embargo is placed on interstate shipment of hogs from the areas from which the California packers buy their hogs, and also where fresh pork is shipped from those areas, then the people of California would face a drastic reduction in pork supply resulting in sky-rocketing prices and disastrous effects to California meat packing companies who are slaughtering hogs. The other alternative would be that midwestern and eastern packers would have a monopolistic control over the entire pork business in this State and no doubt this would result in greatly increased prices because the large national packers have never been known for any philanthropic tendency towards the consumers of meat and meat products.

Therefore, we do, in a sense, face a most serious situation which calls for very drastic measures in eliminating this disease, not only in this State but in the entire Country and, therefore, we should not "pinch pennies" at this time in developing instruments in eradicating the disease and neither should we be lulled into a false sense of security that cooking of garbage will do the job. Developing a preventative vaccine is not an impossible task that would take a decade to accomplish.

Therefore, I urge that your committee consider increasing the appropriation for the veterinary project and stress to the College of Agriculture at Davis that the development of a vaccine in the shortest possible time should be accomplished.

With kindest personal regards I am

Very cordially yours,

E. F. Forbes
President and General Manager

LEAGUE OF CALIFORNIA CITIES AND THE UNIVERSITY RESEARCH PROGRAM

On December 17, 1952, at a Sacramento hearing of the Joint Legislative Committee on Agriculture and Livestock Problems, Senator Hatfield, Chairman of said Committee requested the League of California Cities to review the university proposed research program and to provide the committee with its comments thereon as follows:

Senator Hatfield: Mr. Carpenter (Counsel, League of California Cities), two things—first of all, would you mind preparing for the committee a picture of the financial returns that some of your large cities here in the north, like San Francisco, Oakland, Alameda County, Sacramento, Fresno and so forth—a financial picture of places like that so we can know what the financial situation is. Now, the second thing, have you seen the report of Dr. Briggs?

Mr. Carpenter: The budget you spoke about earlier, no, I hadn't seen that.

Senator Hatfield: I would like you people to do this, tell us whether you approve and think that budget is sufficiently ample. In other words, if we are going to come in with a solution of a research problem, I don't want to come back two years from now, if I am lucky enough to come back, and you say, "Well, you didn't have a proper program. You didn't give them enough money. Let's take another two years and look a little further." We want you to come in to tell us whether you think that is an adequate research program, if that is the solution.

Mr. Carpenter: We will do that, Senator, but I feel that the people who are going to do the research should be those who should determine what the budget is.

Senator Hatfield: All right, we want to know whether or not the University of California is the proper agency, whether you have objections to it.

Mr. Carpenter: No, we don't object to the University of California.

Senator Hatfield: If you object to Dr. Briggs and his suggestion and if the budget is a proper budget, if you have any criticisms of it.

Mr. Carpenter: We will do that, Senator, and present those statements in writing.

Mr. Carpenter was provided with a copy of the report on December 23, 1952, and although, as of the time of the printing this report by the Joint Legislative Committee, no written analysis had been forthcoming from the league as to its review of the proposed University of California research program, representatives of the Joint Committee have been orally informed by league officials that they have been discussing the matter with university personnel and that the league is interested in having more emphasis placed upon the over-all problem of refuse disposal and alternate methods of disposition in addition to the garbage cooking process.

It is understood that league representatives have been informed by the University engineers that additional sanitary engineering research into composting and incineration aspects of municipal refuse disposal over a three-year period would amount to approximately $600,000. The city representatives are desirous that any proposed research program growing out of the vesicular exanthema problem and the possible prohibition of the feeding of raw garbage to swine include the additional sanitary engineering research into composting and incineration. University officials have indicated to the league, according to its spokesmen, that they are in the process of preparing an over-all budget estimate for research into vesicular exanthema and refuse disposal, including processing of raw garbage. The League of California Cities representatives have indicated orally to the Executive Secretary of the Joint Legislative Committee on Agriculture and Livestock Problems that they will approve any such budget submitted by the university which includes the above described sanitary engineering research.

Reports were received by the Joint Legislative Committee from only five northern municipalities—Berkeley, Fresno, Sacramento, San Jose and Stockton.

PART IV

IMMEDIATE LEGISLATIVE ACTION TO REQUIRE TREATMENT OF GARBAGE IS OPPOSED

In the preceeding pages of this report there have been presented data which would appear to indicate that prompt legislative action should be taken to prohibit the feeding of raw garbage to swine. However, several organizations have expressed concern as to the need for, or consequences of such drastic action at the 1953 General Session of the California Legislature. The California Farm Bureau Federation and the League of California Cities have taken an active part in the discussions and hearings into the problem of vesicular exanthema and garbage as a feed for swine, and are not in agreement with the program proposed by the California Department of Agriculture, particularly as it is outlined in Senate Bill 892, 1953 General Session, California Legislature (see Exhibit No. 39 of this report).

So that the reader may have the benefit of counsel from these organizations and their spokesmen who are *not* in complete agreement with the recommendations of the livestock sanitary officials of the Federal and State Departments of Agriculture, Sections 1 and 2 of Part IV have been prepared to present as complete and accurate a statement as possible of their reasons for opposing immediate legislative action requiring the cooking or processing of garbage.

SECTION I

POSITION OF THE CALIFORNIA FARM BUREAU FEDERATION (C. F. B. F.)

In the course of the consideration of the vesicular exanthema problem by the Joint Committee on Agriculture the C. F. B. F. has officially, through various of its spokesmen,[1] made its position on this subject and the question of feeding garbage known to the committee. Based upon these official representations there is hereinafter stated the position of the C. F. B. F. on said subjects.

The C. F. B. F. reports that it represents over 60 percent of the hog raisers and feeders in the State of California, and that this 60 percent accounts for 75 percent of the total pork produced in California. The federation told of its working for years to develop further production of pork in California—that they have failed to increase pork production in this State through grain ranches, but have had somewhat of an increase in production of pork from garbage feeding establishments. The interest is manifold:

1. *Produce pork for California consumers.*
2. *Provide sufficient hogs to packers, independent packers in California.*
3. *Utilization of any feeds that will help alleviate the feed situation in California.*

ACTIVITY OF THE C. F. B. F. REGARDING VESICULAR EXANTHEMA

Following the outbreak of vesicular exanthema in Nebraska in June, 1952, and the subsequent spread of this disease to many other states, the Swine Section of the Livestock Department of the California Farm Bureau Federation appointed a committee of interested garbage feeders under the chairmanship of Virgil Groves, a swine producer in San Joaquin County. The purpose of the committee was to study the over-all problem of vesicular exanthema very carefully and to meet with and discuss the many problems connected with vesicular exanthema with all interested parties and bring back to the California Farm Bureau Federation Livestock Department their recommendations.

The committee first met on August 11th to confer with the assistant director of agriculture, Dr. R. E. Duckworth, and, in his company visited the Santa Rita Rehabilitation Center at Pleasanton, where a garbage-cooking operation has been employed for some time.

Again, on August 26th, the committee met with Dr. Duckworth to further review the current situation and to discuss subject matters which might be included in possible legislation. A request was made of the California Farm Bureau Federation to prepare a preliminary draft of legislation based on the committee's discussion.

On September 30th a meeting of the committee was held in Fresno which was very well attended by representatives of hog feeders in both Northern and Southern California. Dr. Duckworth was present and all in attendance were brought up to date on the vesicular exanthema problem as it stood at that moment. The committee reviewed a preliminary draft of possible legislation,[2] but took no action.

A fourth committee meeting was held, on October 10th, with Senator Hatfield and current information was given the V.E. Committee with reference to the vesicular exanthema problem and questions were asked of Senator Hatfield with reference to possible legislative action. At this time Senator Hatfield informed the committee that there would be an opportunity for the committee to present their views before his Joint Legislative Committee on Agriculture and Livestock Problems in Los Angeles on December 8th and 9th.

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[1] Primarily, O. W. Fillerup, Legislative Representative; L. A. Rozzoni, Chairman, Livestock Department; R. E. Griffin, Secretary of Swine Section.

[2] See Appendix No. 8 for copy of this preliminary draft.

Subsequent to this conference the V.E. Committee took the following action[3] which later was passed by the California Farm Bureau Federation at their annual convention in November, 1952.

"It is necessary that vesicular exanthema in the United States be ultimately controlled and eradicated.

"We reaffirm and re-emphasize our position, in which urgent recommendations were made to the University of California; Bureau of Animal Industry, U. S. D. A., and the American Farm Bureau Federation, requesting further immediate intensive research for the purpose of control and eradication of vesicular exanthema.

"We urge the California State Legislature to provide funds for determining whether the feeding of garbage to livestock is nocuous—particularly with respect to vesicular exanthema and, if so determined, make available information on the proper treatment of said material in order to render it innocuous to livestock. We recommend support for the introduction of such a measure."

On October 29th the V.E. Committee met with Dr. Wellman, vice president, Agricultural Colleges, University of California, and submitted a proposal for the inclusion of sums of money in the University of California's budget for the establishment and operation of two pilot plants, one in Northern California and one in Southern California. Dr. Wellman gave very little encouragement of accomplishing this objective and suggested that Dr. Briggs, Dean of the College of Agriculture at Davis, be contacted as to possible facilities there for a pilot plant operation on the college farm. Mr. Griffin and Mr. Fillerup visited Dr. Briggs the following day but received nothing of a definite nature, but they were informed that a report[4] would be submitted shortly from the University of California, touching on this whole subject of vesicular exanthema control and eradication.

The position of the garbage hog feeders, as indicated in the resolution by the V.E. Committee which was later passed by the California Farm Bureau Federation House of Delegates, is not necessarily one of opposition to the proposal of the Assistant Director of Agriculture, Dr. Duckworth. The hog feeders definitely feel, however, that there are questions that need to be answered before they can be assured that vesicular exanthema *will be eradicated* through the passage of a law making mandatory the cooking of garbage.

There is also a question in the minds of the group as to whether or not they can comply with regulations which the Director of Agriculture will necessarily have to establish in connection with the mandatory cooking of garbage and still obtain a product of adequate feeding value at a practical cost.

The Livestock Advisory Committee of the American Farm Bureau Federation recommends the following considerations in the eradication of vesicular exanthema in hogs:

A. Insist upon an expanded program of research to determine:
   1. The cause of vesicular exanthema and how it is transmitted.
   2. The relative dangers of feeding of raw garbage as compared to cooked or sterilized garbage and the extent to which the disease, as well as trichinosis, is harbored and transmitted in garbage.
   3. What laws or regulations are needed to control the interstate movement of raw garbage.
   4. What relationship, if any, there might be in the increased use of antibiotics, etc., in livestock feeds to the increase in the incidence of this disease.

B. Insist upon a full investigation of the reported spread of vesicular exanthema from certain serum laboratories to determine if laxity exists in the supervision of the manufacture of serum and to develop recommendations to insure the production of safe and dependable serums.[5]

C. Urge that the widespread outbreak of vesicular exanthema in hogs be treated as an extraordinary emergency as would be done in the case of foot-and-mouth disease, and that full efforts of our Federal Government be used to completely eradicate vesicular exanthema as has been done with foot-and-mouth disease.

The California Farm Bureau Federation has been very much concerned and interested in solving the vesicular exanthema problem for quite some time, as evidenced by the fact that, two years ago at the annual meeting of the California Farm Bureau Federation *(in November, 1950), the following resolution was passed:*

"Be it hereby resolved, That the California Farm Bureau Federation demand that the State Department of Agriculture and the University of California Veterinary Science School initiate and carry on a most intensive research program for the purpose of solving the vesicular exanthema problem and that a copy of this resolution be sent to all County Farm Bureaus and to Farm Advisors wherever there is an active swine program."

The Federal Government apparently did not feel the necessity at that time of taking any important action on this recommendation. The University of California took what steps they were able to, but their funds were very limited. It appears to us at this time that, wherea prior to June, 1952, this may have been a problem of concern to the State of California alone, at the present time this is a problem that falls primarily in the lap of federal livestock officials.

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[3] See Appendix No. 7 for R. E. Duckworth's official reply to the C. F. B. F. re this action.

[4] See Part III herein for copy of said report.

[5] See Appendix No. 6 for clarification of this point re spread of V. E. through serum.

SUMMARY OF C. F. B. F. POSITION

The attitude of the California Farm Bureau Federation with reference to the whole problem of eradication and control of vesicular exanthema is:

1. **We recognize that Dr. Duckworth is performing his duty in aggressively seeking legislation requiring the sterilization of raw garbage before feeding to hogs.**
2. **We do not, at this time, oppose the principle of requiring the sterilization of raw garbage before feeding to hogs.**
3. **We recommend, however, that, prior to enactment of any proposed legislation requiring the sterilization of raw garbage before feeding to hogs, that information be obtained, through practical means, to:**
   - a. **Determine whether it is economically practical to sterilize garbage in the larger metropolitan areas of California.**
   - b. **Determine, as accurately as possible, by tests, whether sterilization of raw garbage will eliminate the viscular exanthema organism.**
4. **We recommend that the State Legislature appropriate a sufficient sum of money to accomplish, in a reasonable length of time (approximately one year), the two recommendations set forth in No. 3.**

LOCAL FARM BUREAUS SUPPORT THESE RECOMMENDATIONS

Mr. Virgil Groves, Chairman of the Swine Section of the C. F. B. F., as a result of his attendance at meetings of local farm bureau swine sections throughout California, asserted that the vast majority of the swine producers of this State, both garbage and grain feeders, are opposed to legislation at this time which would require cooking of garbage before it can be fed to swine. They believe that such legislation should be delayed until such time as there is reasonable proof that cooking of garbage is the solution to the V.E. problem, and as to whether or not garbage can be economically cooked.

Groves further stated that, in his opinion, the vast majority of the swine producers favor the California Farm Bureau Federation Resolution, *Eradication of V.E.*, passed at the California Farm Bureau Federation Convention at Fresno in November, 1952. He cited the following voting record on the California Farm Bureau Federation Resolution, *Eradication of V.E.*, as very definitely showing that the resolution has strong support throughout the swine and livestock industry in California.

1. The swine section of the *San Joaquin County Farm Bureau*, with membership in Sacramento, Stanislaus and San Joaquin Counties, passed the resolution. Ninety percent of our members are grain feeders. The Board of Directors of the San Joaquin County Farm Bureau also passed the resolution.
2. The swine section of the *Tulare County Farm Bureau*, with membership in Fresno, Kings and Tulare Counties, passed the resolution as did the Board of Directors of the Tulare County Farm Bureau. Considerably more than 50 percent of the Tulare section are grain feeders.
3. The swine sections of the *Farm Bureaus in the Los Angeles County area*, with membership in Riverside, Orange, San Diego and Los Angeles Counties, and the Board of Directors of the Los Angeles County Farm Bureau, also passed the resolution. These producers are primarily garbage feeders.
4. The swine section and board of directors of the *San Mateo County Farm Bureau* also passed the resolution. This section is composed primarily of garbage feeders.
5. Both the *state-wide swine section* of the California Farm Bureau Federation and the *Livestock Department* of the *California Farm Bureau Federation* unanimously passed the resolution. Both these groups had state-wide representation.
6. *The House of Delegates*, the policy-making body of the *California Farm Bureau Federation*, also passed the resolution.

Further, he reported that as an individual swine producer, he is opposed to the above-mentioned legislation at this time. He has been producing swine for over 25 years and is not now a garbage feeder and never has been. During this entire period he has had a Brucellosis free herd and has isolated for a month and blood tested every hog brought onto his swine ranch. These practices were cited as evidence that he would heartily endorse any practice which he thought would improve the health of the swine herds of our State. However, after hearing representatives from the California State Department of Agriculture, Veterinary Science Department, University of California and the U.S.D.A., B.A.I. express their opinions regarding the V.E. problem and its solution, he is of the opinion that much more information on the subject is needed and some real evidence produced that cooking would eradicate the disease before legislation is enacted that would saddle many more economic problems on the swine industry.

SWINE INDUSTRY SPEAKS ON V.E. AND GARBAGE FEEDING

Appearing before the Joint Legislative Committee were a number of representatives of the swine industry, primarily garbage feeding hog ranchers. In order that their case may be presented fully and fairly to the reader, there is reproduced hereinafter exhibits containing statements made to the committee by these spokesmen.

Exhibit No. 42—Statement by R. G. Saltonstall, owner and operator of a hog feeding ranch in the Los Angeles area.

Exhibit No. 43—Statement of Harry H. Baier, representing the Colma Hog Raisers Association, San Mateo County (includes testimony from transcript of December 18, 1952, meeting of the Joint Legislative Committee).

Exhibit No. 44—Statement of John Giambastiani, hog rancher from the Stockton area.

Exhibit No. 45—Statements by representatives of two cooperative livestock marketing associations.

Exhibit No. 46—California Farm Bureau Federation looks at hoof-and-mouth and raw garbage feeding.

Exhibit No. 47—Remarks of Dr. C. E. Wictor, inspector of Los Angeles County on problem of enforcing garbage cooking requirement.

EXHIBITS IN OPPOSITION TO COOKING GARBAGE

EXHIBIT NO. 42

STATEMENT OF MR. R. G. SALTONSTALL, OWNER AND OPERATOR OF A HOG-FEEDING RANCH IN THE SAUGUS AREA OF LOS ANGELES, BEFORE THE JOINT INTERIM COMMITTEE ON AGRICULTURE AND LIVESTOCK PROBLEMS, ON BEHALF OF THE LOS ANGELES COUNTY FARM BUREAU SWINE SECTION, LOS ANGELES, CALIFORNIA

December 9, 1952

A. GENERAL CONDITIONS IN THE LOS ANGELES AREA

In Los Angeles County and portions of adjacent counties there are located approximately 120,000 hogs which are fed on waste food materials. The term "waste food" includes the following: table scraps, and the refuse from markets, candy factories, bakeries, canneries, and mills, as well as that resulting from food preparation.

The total amount of these waste food materials originating in Los Angeles County amounts to an estimated 1,700 tons per day, a figure prepared by the Los Angeles County Waste Disposal Engineer.

There are at present about *55 hog feeders in the Los Angeles area*, with a *total* estimated sum, based on current values, *invested* in land, buildings, equipment and hogs of *$9,250,000*.

The production of pork on an annual basis resulting from these feeding operations, it is estimated, amounts to 30,000,000 pounds.

Methods of collection and disposal can be divided into three categories:

1. The city collects and delivers to the contractor at a transfer station all waste originating in that particular city or sanitation district of the city or the county. The contractor pays the city a specific sum per ton.

A faithful performance bond is required of the contractor for the length of his contract which may run from 3 to 10 years.

2. The contractor collects under a franchise and the city or sanitation district pays him for his services. A faithful performance bond is required for the length of his contract.

3. In areas where collection is not provided for through either of the foregoing methods, licensed collectors enter into agreement for collection service directly with the individual householder.

B. A TYPICAL OPERATION

I consider the conditions under which I operate including costs, investments and contractual relationships fairly typical of the industry in this area.

In my feeding operations I have in use 22 pieces of hauling equipment, there are 10 dwelling units for ranch employees, and I have two wells together with high pressure water systems, six complete sewer systems on the property, 36,000 square feet of concrete feeding floors and driveways. The entire feeding is fenced with 20,000 lineal feet of 36-inch high concrete fence; there are 220 acres of land in the ranch enterprise on which are employed 16 people full time. In addition to the above, there are six other buildings of various types, miscellaneous equipment such as spray rigs, hand tools, pumps, stationary engines, etc.

From November 1, 1951, to October 31, 1952, I marketed 3,294 hogs representing a total live weight 852,714 pounds equaling, on a 70 percent yield, 596,500 pounds of pork.

In this operation I feed about 75 tons of waste materials per day which is accumulated at one of the central transfer stations within the City of Los Angeles, a distance of 38 miles from my ranch. My portion of the faithful performance bond with the City of Los Angeles is $15,000. This obligates me to receive and dispose of this waste material until September of 1954.

C. CONCLUSIONS AND RECOMMENDATIONS

We feel that the rigid inspection system for V.E. as carried out by the Los Angeles County Livestock Department has proved highly effective, even though at times working a hardship on the feeder because of mandatory 30-day quarantines.

It is suggested that an inspection system of this type could well be extended.

We feel that the proposal of the Assistant Director of Agriculture to enact legislation at this time requiring the processing of waste materials before feeding to hogs would prove absolutely ineffective.

There is no equipment available to process the large amounts of waste materials originating in this area.

There is no information available as to how this large scale processing of waste materials can be accomplished. It may be economically impossible to do this.

Lack of information on suitable equipment and methods of processing, as well as the feeding value of the resulting product, gives rise to serious doubt in our minds as to the effective enforcement of any proposed legislation at this time requiring the processing of waste materials.

We, therefore, earnestly recommend to the Interim Committee on Agriculture of the State Legislature their endorsement of an appropriation of funds for further study of this entire problem.

In addition to Mr. Saltonstall several other owners and operators of garbage feeding hog ranches from Southern California made brief appearances before the Joint Legislative Committee on Agriculture and supported the conclusions and recommendations listed above by the California Farm Bureau Federation and Mr. Saltonstall. Those who appeared were:

Mr. Perumean, Artesia District, Los Angeles County.

Mr. Jack Arkalian, Los Angeles County.

Mr. O'Donnel, appearing on behalf of himself and 25 or 30 other garbage feeding hog ranches in San Diego County.

Mr. McCann, appearing on behalf of himself and a "good part" of the hog feeding industry in Kern County.

Mr. L. J. Scritsmier, Chairman, Los Angeles County Farm Bureau Swine Section.

EXHIBIT NO. 43

STATEMENT OF HARRY H. BAIER, ATTORNEY FOR COLMA HOG RAISERS ASSOCIATION (SAN MATEO COUNTY), BEFORE JOINT LEGISLATIVE COMMITTEE ON LIVESTOCK PROBLEMS REGARDING VESICULAR EXANTHEMA IN SWINE AND FEEDING OF FOOD GARBAGE

December 17, 1952

The number of hogs upon the ranches of the members of this association is approximately 15,000, the *total investment* being estimated at approximately *$750,000*, including the value of hogs, annual sales of hogs being somewhat over a half million dollars. The members of this association collect a large part of the food garbage produced in hotels and restaurants and other places where food is prepared and served commercially in the City and County of San Francisco, including some governmental institutions and agencies, under private contract with the producers of such food garbage. The collection of this food garbage coming from such sources does not contemplate the inclusion therein of waste raw fats or waste raw meats, as such material is segregated by the producers for sale to the tallow interests, which I understand to be the prevailing practice throughout the State in connection with the collection of food garbage from such commercial sources, institutions and agencies, which is due to the higher value of such waste fats and meats, which bring to the producer approximately $100 per ton; whereas, the food waste collected for hog feed brings on an average of a few dollars per ton more or less. A similar situation prevails with respect to butcher shops. Household garbage in the City and County of San Francisco is not collected by the hog raisers; it is collected by the local scavenger associations and is disposed of by fill and cover methods in San Mateo County.

There is an additional 15,000 head of hogs more or less raised in San Mateo County by other hog raisers who also feed food garbage collected from the same sources in the City and County of San Francisco, and who do not belong to the Colma Hog Raisers Association, and it is estimated that the total gross sales of hogs in San Mateo County is approximately one and one-quarter million dollars yearly. The daily production of the food garbage from the City and County of San Francisco is estimated at about 150 tons.

RAW GARBAGE IS NOT THE PRIMARY SOURCE OF V.E. CONTAGION

With respect to the disease known as vesicular exanthema in swine and the feeding of food garbage, inasmuch as the virus of this disease is not generated in food garbage, the part which the feeding of such material would have to do with contagion, if any at all, would depend upon the extent that such waste food contained raw pork scraps which are contaminated with the virus of vesicular exanthema and any contagion resulting from the eating of such contaminated pork scraps by the hogs would be secondary to the primary or original onset of the virus and the ordinary spread of the disease resulting therefrom. In the report submitted by Dr. Duckworth with respect to the onset of the disease, he states, "It seems to occur in annual cycles on garbage feeding premises which *may be due either to* the fact that the disease is enzootic in the swine herds and on the premises *or is introduced* from time to time by infected meat scraps in garbage." Undoubtedly, Dr. Duckworth means raw pork scraps. The fact that the disease appears in annual cycles would not seem to support this theory of secondary contagion, as it is not reasonable to suppose that raw pork scraps would appear in the food garbage only at such times. To compel the cooking of all food garbage upon the supposition that the disease *may be* introduced by the feeding of raw pork scraps would be an experiment involving such a tremendous cost that it would not be practical, and in all probability the cooking of food garbage would be impossible from an economic standpoint, particularly where large quantities are involved, and further study of this matter is required, as well as the possible effectiveness of the procedure.

With respect to commercial food garbage from hotels and restaurants, governmental agencies and institutions where the practice exists to segregate the waste raw fats and raw meats, the possibility of raw pork scraps being contained in such food garbage is greatly reduced. Fresh pork is an item not customarily found on bills-of-fare in commercial eating establishments. Fresh pork for household use is prepared in butcher shops for cooking and ordinarily does not require trimming in the household. The significance of those factors relating to the sources of raw pork scraps and said practices have some bearing upon the extent to which such material may be contained in food garbage whether the food garbage is commercial or household. If I am correctly informed, it seems that no tests have been made to determine whether the virus of vesicular exanthema would still exist in the flesh of a hog after recovery from the disease, and if it does not exist after recovery this is most important as a further factor in reducing the possibility of contaminated pork scraps being contained in food garbage. The symptoms of vesicular exanthema are objective and are readily observed by ordinary visual examination and hogs having such symptoms are not permitted to be sold until such symptoms disappear.

IT IS NOT CERTAIN THAT PROCESSING GARBAGE WOULD ELIMINATE V.E.

That the elimination of vesicular exanthema cannot be stated with any degree of certainty in view of what may be the causative factors of the virus and the primary causes of infection and the possibility of the existence of other sources of secondary infection, and until some effective means is discovered striking directly at the virus, the industry would have little assurance that further outbreaks of the disease would not occur. Legislation requiring the cooking of all food garbage irrespective of the innocuous condition of perhaps 99.9 percent or more of the mass would hardly seem reasonable and may not pass the test of reasonableness, as raw pork scraps do not reach the swill can as a result of natural causes, and the effectiveness of the procedure seems highly speculative.

Inasmuch as vesicular exanthema is one of economic concern and strikes directly at the profit of the hog raiser, it is to the interests of the industry and everyone engaged in the business that some practical steps be taken, if possible, to prevent outbreaks of the disease and losses resulting therefrom. The hog raisers in this State who feed food garbage, and notwithstanding that vesicular exanthema has appeared from time to time in California during the past 20 years, have produced millions of dollars worth of pork and millions of dollars have been saved to the municipalities and the taxpayers therein in the matter of disposal.

SWINE INDUSTRY DOES NOT THREATEN ALL LIVESTOCK INDUSTRY

That the industry offers a threat to the entire livestock industry of this State cannot be conceded. *Vesicular exanthema cannot be transmitted to cattle.* The practice of feeding waste food coming from ships has long since been discontinued, and if swine can be infected with bovine hoof-and-mouth disease by eating beef scraps contaminated with the virus of foot-and-mouth disease, the source of infection would be from infected cattle, and if the cattle of this State remain free from foot-and-mouth disease there is no danger to the cattle raising industry as far as vesicular exanthema is concerned, and no danger from any infection of hoof-and-mouth disease coming from hogs eating foreign meat scraps. *The recent outbreak of hoof-and-mouth disease in Canada and England, where we are informed food garbage is cooked, demonstrates that outbreaks of that disease can be caused by other factors than by hogs eating foreign beef scraps which are contaminated with the virus of hoof-and-mouth disease.*

In conclusion, it would seem that the only practical recommendation which can be made is to follow out the resolu-

tions passed by the California Farm Bureau Federation calling for further study and research upon the subject of vesicular exanthema and related subjects. Further information and knowledge upon those subjects is absolutely necessary before any legislation is enacted that would require the cooking of food garbage.

* * * * * * *

Pertinent to Mr. Baier's comments on the reasonableness of a mandatory garbage cooking law to control vesicular exanthema the following excerpts from the transcript of the December 18, 1952, meeting of the Joint Legislative Committee on Agriculture and Livestock Problems:

Senator Desmond: I would like to ask the doctor, calling your attention to the bottom of page 1 of your statement (University Report in Part III) here, and then in view of your answers to my question that vesicular exanthema does not cause foot-and-mouth disease, why do you make the statement at the top of page 2 and I will quote: "The last two outbreaks (1924-1929) of FM which occurred in California have been clearly established as originating in swine which were fed raw garbage contaminated with food refuse removed from ships returning from the Orient and South America, respectively."

Dr. Briggs: I am not quite sure how to answer your question to make myself clear, but the purpose in bringing FM into the picture is that they are very similar types of viruses, that we know a good deal about FM and we don't know so much about vesicular exanthema, but we are trying to make deductions from what we know about FM and trying to solve the vesicular exanthema problem.

Senator Desmond: Did I understand you to say earlier to my questions that the virus of vesicular exanthema was not the source of foot-and-mouth disease?

Dr. Briggs: Vesicular exanthema virus causes vesicular exanthema. It does not cause what we know as foot-and-mouth disease under any circumstances at any time at any place.

Senator Desmond: All right. Now then, in view of that definite statement why do you say that the outbreaks of foot-and-mouth disease in 1924 and 1929 which occurred in California have been clearly established as originating in swine which were fed raw garbage?

Dr. Briggs: That is right. That has some bearing on the importance of feeding raw garbage and the continuation of the vesicular exanthema disease. There is that similarity. They both come from feeding of raw garbage to a very considerable extent at least.

Senator Desmond: Both diseases?

Dr. Briggs: Yes.

Senator Desmond: But, you leave the inference here under Dr. Duckworth's statement and that is in this record also that foot and mouth disease is a derivative from the virus of vesicular exanthema.

Dr. Briggs: I am sorry.

Senator Desmond: I mean this statement does. Now, you don't intend that, do you?

Dr. Briggs: No, I certainly do not and the committee did not, and I hope it is not widely understood to convey that impression.

Senator Desmond: In this transcript (December 9, 1952) Dr. McDonald of the Federal Bureau of Animal Industry indicates on page 67 and 68 that vesicular exanthema does not originate from the feeding of domestic garbage but originates as near as their studies disclose from the feeding of garbage taken from ships, and he refers to one ship, I believe the City of Los Angeles, that had been around the world on a tour. Now, again referring to this statement, would you say that the cause of the outbreak of foot and mouth disease in 1924 and 1929 before there was ever a known outbreak of vesicular exanthema in California was caused from the feeding of garbage, foreign garbage or garbage from foreign ships to hogs in California?

Dr. Briggs: Yes, that was foot and mouth and that was according to the statement which we have, and I believe was the cause of those two outbreaks, the feeding of raw garbage coming from these ships.

Senator Desmond: But not to domestic garbage?

Dr. Briggs: No.

Senator Desmond: Doctor just one more question. Speaking about the cooking of garbage, isn't it a fact that the greatest percentage—I don't know—of all garbage fed to swine in California comes from the tables of the ordinary home and from the restaurant tables in this state?

Dr. Briggs: I am unprepared to answer that question.

Senator Desmond: You don't know?

Dr. Briggs: I don't know.

Senator Desmond: Well, let us assume now that it is. Isn't it a fact that all of that garbage except such things as lettuce and perhaps fruits and things of that sort is all cooked?

Dr. Briggs: I think I missed your point there.

Senator Desmond: Well, let's try not to miss it. I think it is rather important. Let us assume that the greatest percentage of all garbage consumed by swine in California is garbage that is being accumulated by garbage collectors from the homes of individuals, from restaurants and hotels and places of that sort. Now, is it not a fact that all of that garbage is from food that's been cooked.

Dr. Briggs: Well, no.

Senator Desmond: It is the remains of food that's not been eaten by the individual.

Dr. Briggs: I don't agree with that, no sir. I think that would be predominantly so in the home garbage, but I think even the housewife may occasionally trim a piece of meat before she cooks it, in which case the trimmings would find their way into the garbage and that certainly would be true of hotels.

Senator Desmond: Let's assume then, that a lot of this garbage is not cooked. It takes the form of raw vegetables, we will agree on that?

Dr. Briggs: Yes.

Senator Desmond: All of the meat that is eaten with the exception of trimmings in restaurants and perhaps butcher shops is cooked before it is served at the table and eaten, isn't it?

Dr. Briggs: Right.

Senator Desmond: Now, then, you made the statement a little while ago it was your opinion that the primary cause of vesicular exanthema was the eating of raw pork by swine in garbage, is that correct?

Dr. Briggs: Yes, infested raw pork.

Senator Desmond: What?

Dr. Briggs: Raw pork which has the virus in it.

Senator Desmond: That is right. Now, admitting that that is only a small percentage or a percentage of all of the garbage, the rest of the garbage is already cooked before it is fed, isn't it?

Dr. Briggs: I would desperately like to give you the information that you seek. Not every piece of raw pork that finds its way into garbage carries the virus. Not every ton of garbage presumably, and I am not a great student even of my own garbage can, so that a swine feeding establishment might feed a good many hundreds, even thousands of tons of raw garbage before he would have the misfortune where one or more of his hogs would get a hold of a piece of raw pork that would give him the disease.

Senator Desmond: I don't know about the rest of the committee here, but I assume that it is true that only a very small percentage of all of the refuse or garbage that finds its way into a garbage can and eventually to a hog feeding plant consists of garbage which might be raw pork which could transmit this disease.

Dr. Briggs: I think all of the evidence is in that direction.

Senator Desmond: Have you any idea or do your studies demonstrate or disclose any figures on what that percentage might be?

Dr. Briggs: No.

Senator Desmond: Would you say from your experience and from your studies of this it was a large or a small amount of all of the garbage?

Dr. Briggs: Well, it must be small, but to put it in terms of percentage would be a wildest kind of a guess.

Senator Desmond: Thanks.

Senator Hatfield: Doctor, vesicular exanthema and foot and mouth disease are two separate viruses?

Dr. Briggs: Yes, sir.

Senator Hatfield: One does not transmit the other?

Dr. Briggs: That is right.

Senator Hatfield: Raw garbage will transmit them both?

Dr. Briggs: That is right.

Senator Hatfield: You are talking about raw pork, cooking pork and so forth, cooking it in the homes in order to kill the virus that might exist in the pork—when you are talking about cooking you mean cooking to a sufficient length of time and with sufficiently high degree, don't you?

Dr. Briggs: That is right, sir.

Senator Hatfield: When you talk about raw pork, you don't necessarily mean pork that hasn't had some cooking. You mean pork that hasn't been cooked sufficiently, at a sufficiently high degree for a sufficient length of time?

Dr. Briggs: I should have modified that aswer, yes, sir.

Senator Hatfield: Is it also true from your studies of the statistical information that has been furnished by the department as to the outbreaks of vesicular exanthema in California over a period of years, that the great percentage of the outbreaks occurred in hog feeding establishments where raw garbage is fed, as contrasted to the establishments where no raw garbage is fed?

Dr. Briggs: Yes, sir, that is right.

Senator Hatfield: And has a very marked difference, has it?

Dr. Briggs: About 1,351 cases to be exact on 400 farms as contrasted with 51 for 19,000 odd farms.

Senator Hatfield: And the incidence of the disease month by month, year by year, recurs to a still more marked degree on the same premises where raw garbage is fed than on the premises where they are only fed grain?

Dr. Briggs: That is right. Recurrence on grain fed farms has been very minor.

* * * * *

Pertinent to Mr. Baier's comments on vesicular exanthema threatening the rest of the livestock industry are the following excerpts from the transcript of the December 18, 1952, meeting of the Joint Legislative Committee on Agriculture and Livestock Problems:

Senator Desmond: Is vesicular exanthema a source of foot and mouth disease?

Dr. Briggs: No, it is not.

Senator Desmond: All right. Now, I want that in the record.

Dr. Briggs: That is right.

Senator Desmond: Is that definitely clear?

Dr. Briggs: Yes.

Senator Desmond: Do you all agree on that?

Dr. Briggs: Yes.

Senator Desmond: Does Dr. Bankowski agree on that?

Dr. Briggs: He is right here. If he disagrees, he can say so.

Senator Desmond: I have read this record and there is some doubt in my mind as to whether or not there is any veterinarian or scientific opinion on that subject. Are you all agreed on that?

Dr. Briggs: Yes, sir, that is right.

Senator Desmond: That is all I want to know. One other question. Assuming then that that is a fact and vesicular exanthema is not a source of foot and mouth disease, then is it also your opinion that a person could travel or walk about a herd of swine where there might be vesicular exanthema existing and that through carrying of mud and refuse and other things that that would not be transplanted to a herd of cattle or sheep and create foot and mouth disease?

Dr. Briggs: No, these are two different diseases. Now, we are talking about foot and mouth and vesicular exanthema——

Senator Desmond: When you say, "No," in other words ——

Senator Hatfield: I think you ought to give the doctor an opportunity to finish his explanation.

Senator Desmond: He can have all the opportunity he wants to finish, but I would like to save time.

Senator Hatfield: You are cutting him off in his answer.

Senator Desmond: Doctor, back in 1924 when we had an outbreak of foot and mouth disease, we all had to drive cattle through vats of sterilizer, and we had to walk through sterilizer and so forth, in order to prevent carrying of the foot and mouth disease from one place to another. Then, would you say that since vesicular exanthema is not a source of foot and mouth disease that it could be carried and create foot and mouth disease by walking through—

Dr. Briggs: There is no way in the world that vesicular exanthema can create foot and mouth disease.

Senator Desmond: That is what I want to know.

Senator Hatfield: Now, first of all, in order that the record may be clear, I would like to point out that following the testimony (December 9, 1952, Joint Legislative Committee hearing) that was read by Senator Desmond, in answering the question Dr. Bankowski remarks:——(reading from transcript of said hearing)—quote—

"*Dr. Bankowski:* The answer to that would be that I don't know. Our knowledge concerning vesicular exanthema, as I said before, is extremely limited. Now, whether other animals will carry the vesicular exanthema virus, I don't know.

"*Senator Hatfield:* Well, it is known that human beings and animals that are not susceptible to the disease will carry foot and mouth disease.

"*Dr. Bankowski:* That is true.

"*Senator Hatfield:* But, you don't know whether that is true as to vesicular exanthema?

"*Dr. Bankowski:* I should modify that answer just a bit. I assume that you were thinking of whether the virus is carried within the body of those animals?

"*Assemblyman Lowrey:* No. I wasn't thinking it was carried within the body. I was thinking about is being carried on their hoofs. If you have some earth in the cloven hoof of a sheep or a cow that is going through the same chute or yard that the cattle and sheep have been in, would there not be a possibility that that virus would be transposed in the earth to my clean premises?

"*Dr. Bankowski:* There is an excellent possibility.

"*Senator Hatfield:* Along the lines of Mr. Lowrey's question, it would be possible for human beings to carry it on shoes or clothing or vehicles?

"*Dr. Bankowski:* Or any other means of transporting dirt or mud.

"*Assemblyman Lowrey:* When they say this is a simple proposition that applies only to hogs some of the rest of us are a little bit interested, too.

"*Dr. Bankowski:* Yes, sir." (End of quote)

I would like to ask you this question. Foot and mouth disease and vesicular exanthema are both viruses?

Dr. Briggs: That is right, sir.

Senator Hatfield: Two distinct viruses?

Dr. Briggs: Two distinct viruses.

Senator Hatfield: Both of them—there is a possibility of the virus being carried outside of the bodies of the animals?

Dr. Briggs: Yes, sir.

Senator Hatfield: As I understand it, foot and mouth applies only to cloven hoofed animals, but other animals or human beings may carry the virus, both of the viruses or either of the viruses on their shoes or on their clothing or their hoofs or things of that kind?

Dr. Briggs: Yes, sir. Some reference to that will be made later in this report. Some experiments have been carried out to show that the virus will live in soil and other materials for some length of time which will make it very possible to transmit it on shoes or clothing or hoofs of other animals.

Senator Desmond: All right, doctor, that being true, they are both separate and distinct viruses?

Dr. Briggs: That is right, sir.

Senator Desmond: Now, let's assume that you were in a swine herd where there was a very definite outbreak of vesicular exanthema and in fact 100% infection, and you went all through that herd and you walked all around through the pens of the herd of swine. Let's assume, too, that the virus of vesicular exanthema was on your shoes or on your clothing, could you carry and transmit that virus to a corral in which cattle or sheep were being fed and there create the disease of hoof and mouth?

Dr. Briggs: The answer is "No."

EXHIBIT NO. 44

STATEMENT OF MR. JOHN GIAMBASTIANI, HOG FEEDER, STOCKTON AREA, TO THE JOINT LEGISLATIVE COMMITTEE ON AGRICULTURE AND LIVESTOCK PROBLEMS

I feed approximately 3,000 hogs, mainly on garbage—unsegregated household garbage, segregated restaurant, army, and institutional garbage. In addition, cannery waste, cull potatoes and beans, and grain is being fed. Last year I marketed 6,620 butcher hogs. Inasmuch as I do not do any breeding, I must buy all my replacement stock as feeder pigs, ranging from 60 to 120 pounds, and the majority of these pigs come from breeding farms in Northern California.

Vesicular exanthema has been one of our important disease problems, and the complete eradication thereof is of great importance to me. As a result of many years observing the peculiar actions of this disease, I firmly believe that more research and information is necessary before any legislative action be taken. Research in the field under every day conditions seems to be lacking more than anything else, and it is possible that new light may be thrown on the solution of this disease if more work is done along these lines.

I wish to re-emphasize the necessity for an immediate and definite program; therefore, it is my hope that the California State Legislature will provide funds for a complete research program for the purpose of control and eradication of vesicular exanthema.

EXHIBIT NO. 45

TWO COOPERATIVE LIVESTOCK MARKETING ASSOCIATIONS EXPRESS THEIR INTEREST IN THE V.E. PROGRAM

STATEMENT BY L. W. FELDMILLER, MANAGER OF THE VALLEY LIVESTOCK MARKETING ASSOCIATION, STOCKTON, CALIFORNIA, TO THE JOINT INTERIM COMMITTEE ON AGRICULTURE AND LIVESTOCK PROBLEMS

December 17, 1952

The Valley Livestock Marketing Association is a cooperative livestock sales organization, owned and operated by 5,000 livestock growers in Central and Northern California, and in 1952 this association will market over 93,000 hogs, which is approximately 11 percent of the total hog production in California for this year.

The members of this marketing association, who are engaged in the raising and feeding of hogs represent a true cross-section of the swine production of the State, and include both grain feeding and garbage feeding operators. Of these 93,000 hogs which will be marketed this year, approximately one-half are feeder pigs, 90 percent of which go to garbage feeders. Approximately 70 percent of the hogs which will be marketed as slaughter hogs come from garbage ranches. These figures are mentioned in an effort to show the prominent part that garbage feeding plays in the field of pork production in California, and are no doubt indicative of the general averages throughout the State, particularly north of the Tehachapi.

In recent years the demand on the part of garbage feeders has provided an excellent market for feeder pigs produced on grain ranches at prices which have consistently ranged from $2 to $10 per cwt. above the fat hog market. The unfavorable relationship which has existed between feed costs and the price of hogs during the past two or three years has resulted in many strictly grain feeders discontinuing in the hog business. The vast majority of those that are left limit their operations to the production of feeder pigs which are sold for finishing on garbage.

In the event restrictive legislation prohibits or greatly curtails garbage feeding, it might reasonably be expected to result in the lowering of feeder pig prices to a level of from $4 to $6 per cwt. below the fat hog market.

This association takes the same position as that taken by the California Farm Bureau Federation, the American Farm Bureau Federation, and the National Livestock Producers Association, in that we favor the eradication and control of vesicular exanthema. We cannot however, be carried away by the hysteria which has suddenly developed within the past few months, and favor therefore, approaching this problem on a sound basis backed by adequate experimental evidence, rather than drastic and hastily formulated legislation, which might result in disruption of the normal production of both feeder and slaughter hogs in our State.

* * * * *

In addition to the remarks made by Mr. Feldmiller, it is important to note some of the

STATEMENTS ADDRESSED TO THE COMMITTEE BY MR. H. C. JACKSON, MANAGER OF THE CALIFORNIA FARM BUREAU LIVESTOCK MARKETING ASSOCIATION, VISALIA

Mr. Jackson stated that his organization represented about 4,500 active members in the San Joaquin Valley and that they "were interested in this problem because we figure it is vital to the whole swine industry of California. * * * The high price of grain and a relatively low price of hogs has caused us to change our method of producing hogs greatly in California. It used to be that we were predominantly a grain feeding section in our area. Today we handle through our markets quite a volume of garbage hogs, that is, fed up by garbage. Those farmers who are raising hogs today sell them as feeder pigs and the outlet is to the garbage feeder. Now anything that affects the garbage feeder in California will most certainly affect the other swine growers for that reason. We, therefore, are quite anxious that no detrimental legislation, that is, legislation that will hamper the operation of those garbage feeding establishments will be enacted, and we support wholeheartedly the position of the C. F. B. F. and the A. F. B. A. * * *"

Exchange of questions and answers between Senator Hatfield and Mr. Jackson as follows:

Senator Hatfield: Now, may I ask a question? You represent a large percentage of the hog raisers of the San Joaquin Valley?

Mr. Jackson: That is correct.

Senator Hatfield: Do not your members sell grain feeder hogs in the Los Angeles market to these people that run the hog farms down here that feed the garbage?

Mr. Jackson: Our feeder pigs are moved directly from the ranches in the San Joaquin Valley to the garbage feeders in Los Angeles, San Francisco, and Stockton areas, and through the San Joaquin Valley.

Senator Hatfield: I mean a large portion of the activities and the business of the people that you represent is the production of the feeder hogs which are sold under some arrangement with these garbage feeding lots?

Mr. Jackson: That is right.

Senator Hatfield: In other words, I suppose that they buy them?

Mr. Jackson: That is right.

Senator Hatfield: In other words, you are interested not because you primarily feed garbage in the valley, but you sell your feeders to these people that do?

Mr. Jackson: That is correct, Senator. We are interested very largely because of the outlet of feeder pigs in the San Joaquin Valley.

EXHIBIT NO. 46

CALIFORNIA FARM BUREAU FEDERATION LOOKS AT FOOT-AND-MOUTH DISEASE AND RAW GARBAGE FEEDING

A primary reason for requiring sterilization of raw garbage before feeding to hogs has been the confusion of the two diseases, foot-and-mouth disease and vesicular exanthema, in the absence of a well defined differential diagnosis test. We call attention, in this connection, to the fact that of nine recorded outbreaks of foot-and-mouth disease in the United States, and at least one in Mexico and one in Canada, only two outbreaks have involved hogs which have been fed raw garbage—those occurring in 1924 and 1929. During the largest recorded outbreak of foot-and-mouth disease, which occurred in 1914, and subsequently spread to 22 states and the District of Columbia, there were 3,556 herds (cattle, sheep, swine) slaughtered. A tabulation of the sources of infection by the U. S. Bureau of Animal Industry, during the 1914 outbreak, listed 13 known sources of infection. "Infected feed or garbage" was listed as one of these 13 known sources of infection. Only 22 of the 3,556 herds slaughtered were traced to "infected feed or garbage" as a known source of infection.

In only one outbreak of foot-and-mouth disease (1929), was the infection detected early. Dr. R. E. Duckworth stated before a meeting of the California Veterinary Medical Association in 1952: "If we in the United States view the Canadians with a critical eye, let us not forget that in *every outbreak of foot-and-mouth disease in the United States*, with the exception of 1929, veterinarians, private and official, have pursued a course of indecision and questionable judgment for from two to several months before the disease was finally diagnosed as foot-and-mouth disease * * *" (*California Veterinary Medical Journal*, July-August, 1952). From this statement is seems evident that other factors have contributed to the delay in prompt recognition of foot-and-mouth disease outbreaks in the past, besides the virus disease of vesicular exanthema itself.

The practice of processing raw garbage before utilization as a hog feed, in England, has been cited in several instances as a recommended procedure for adoption in California. In spite, however, of this precaution, England today is experiencing one of the most severe epidemics of foot-and-mouth disease. The Veterinary Record, official publication of the British Veterinary Association, publishes the following table in the August 23, 1952, issue of the magazine:

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

SUMMARY OF RETURNS OF CONFIRMED OUTBREAKS OF SCHEDULED (NOTIFIABLE) DISEASES

Period	*Anthrax*	*Foot-and-mouth*	*Fowl pest*	*Parasitic mange*	*Sheep scale*	*Swine fever*
July 16 to 31, 1952	54	22	8	—	—	25
Corresponding period in						
1951	8	5	38	—	—	55
1950	13	2	4	—	—	8
1949	8	—	18	—	—	—
January 1 to July 31, 1952	364	459	134	—	1	604
Corresponding period in						
1951	275	26	554	—	4	565
1950	233	16	100	—	19	43
1949	114	11	337	—	28	5

In the 20 years since vesicular exanthema first made its appearance in California this disease itself has not cost the beef cattle industry, the dairy industry, the sheep industry or the poultry industry one cent.

There must be significance in the reluctance of other states to act in the field of legislation with reference to garbage processing and added significance to the almost complete lack of information in states and countries where processing garbage is presumed to be required.

In the report of the University of California Committee on Garbage Feeding of Swine, dated December 21, 1951, the following pertinent comment appears on pages 2 and 3:

> "Several states have enacted laws and regulations for various reasons which require the cooking of garbage. At present there are six states—Florida, Kentucky, Louisiana, Nebraska, New York and Washington—with such statutes. * * * Upon original inquiry three of the six states indicated they had no such statutes requiring cooking of garbage. Further correspondence developed that statutes were existent in all six states. Following are examples of statements received in some of the letters:
>
> "(1) 'Enforced in flexible manner' or 'not carried out as a rigid requirement.'
> "(2) 'Fairly well carried out' or 'intent * * * is being carried out.'
> "(3) 'Do feed raw garbage, however.'
> "(4) 'Question how thoroughly the provisions of the law.'
> "(5) 'Has not been a very vigorous enforcement.'
>
> "Such statements seem to indicate that the laws and regulations in effect are not enforced and probably not complied with. In most cases enforcement depended on local authorities and cooking is the responsibility of the individual feeder."

EXHIBIT NO. 47

REMARKS OF DR. C. E. WICTOR, INSPECTOR OF LOS ANGELES COUNTY, ON PROBLEM OF ENFORCING GARBAGE COOKING REQUIREMENT

Dr. C. E. Wictor, Inspector of Los Angeles County, reported to the Joint Agricultural Committee that, in his opinion, it is impractical to enforce a garbage cooking law "because in Los Angeles County, for example, we find at least one individual per week who is feeding garbage unlawfully, even though we are licensing garbage feeding hog ranches." He cited a report which stated that despite the fact that England is supposed to have a law requiring cooking of garbage, three-fifths of all the outbreaks of hoof-and-mouth disease occur among swine invariably fed on garbage, and, therefore, concluded "that you are going to encounter (difficulties) in attempting to cook this garbage. The cost of this enforcement is going to be very high."

Wictor went on to say, "Now, there are 47 other states that will also have to pass these laws and enforce them if this is going to be effective." Also, that "statements have been made that inspection quarantine is of no value. I question such a statement in that in the past 20 years, the packing house yards in Los Angeles County have been infected only once to my knowledge. We have had no known infection in public stockyards in Los Angeles since 1945." He recommended that "instead of a cooking law that we have a state-wide license in garbage feeding hog ranches, inspection of these ranches—that is, when they are built as to whether the ground is suitable for hog raising, established minimum building requirements, inspect all hog ranches once weekly, inspect all swine on the ranches whenever they want to ship, and issue permits good for 24 hours only, quarantine all infected ranches for a minimum of 30 days until all lesions are healed, and under no circumstances slaughter known infected hogs for meat purposes."

SECTION 2

THE POSITION OF THE LEAGUE OF CALIFORNIA CITIES

The interest of the municipalities, as represented by the League of California Cities, in the problem of eradication of vesicular exanthema of swine through the prohibition of feeding raw garbage to livestock is, essentially, one of economies. However, it should be emphasized early in this presentation that the cities have indicated that they do not desire to obstruct steps which are necessary for the public health and safety.

Simply stated, the concern of the cities in this problem emanates from the fact that row garbage has a value to hog ranchers as a feed for their swine, and, in recognition of this value, cities are able to negotiate contracts whereby commercial garbage (and sometimes residential as well) is collected and/or disposed of for the cities at a lesser cost than would be possible should the raw garbage not have a value as a hog feed—in fact, in 22 out of 52 cities reporting to the Joint Committee on Agriculture, the cities received from the contractor revenue (total of approximately $377,866 annually) into the city treasury for the privilege of disposing of the garbage. This source of garbage disposal has been of considerable assistance to many cities in that it provided an economical manner of accomplishing a necessary municipal function. The opinion of authorities in most of these cities is that if the feeding of raw garbage to livestock is prohibited, the hog ranchers will either place a much lesser value on the garbage to be obtained in cities or will go out of the garbage feeding hog business entirely.

In such an eventuality the problem of alternate methods of garbage disposal confronts municipal officials, and the cost thereof confronts the local taxpayers. Serious as this problem of garbage disposal is to the city officials, it is secondary to the problem facing the Joint Legislative Committee on Agriculture and Livestock Problems. To this committee is assigned the responsibility[1] "* * * to study and analyze * * * all facts and matters pertaining to livestock diseases and the effect or possible effects thereof on the livestock industry, including but not limited to the operation, effect, administration, enforcement and needed revision of any and all laws in any way bearing upon or relating to the subject of this resolution * * *", and it must of necessity give primary consideration to the livestock disease control aspect of the vesicular exanthema problem. However, the committee recognizes the position of these municipalities which would be affected by legislation prohibiting the feeding of raw garbage to livestock and desires at this point to insert into the record excerpts from the testimony presented to the committee by city officials at hearings held by it in December, 1952, and as forwarded to the committee office in Sacramento.

At the committee hearing on December 9, 1952, in Los Angeles, on the subject of vesicular exanthema and garbage feeding, spokesmen for the cities appeared and presented the viewpoint of the municipalities of Southern California. In fact, a file [2] containing statements from 46 cities representing 82 percent of the population of incorporated municipalities in Southern California were presented to the committee. Following this hearing an additional meeting was held by the committee in Sacramento on December 17, 1952, and at that time Mr. Richard Carpenter, Counsel for the League of California Cities, appeared on behalf of the municipalities and stated:

> "Mr. Chairman, and Members of the Committee, I don't have a presentation to make such as was made in Los Angeles by the representatives of the cities there. My understanding from the file that I have and from the file that has been presented to your committee is that that statement was complete in every respect. We (The League of California Cities) felt that it would be undesirable to have a similar number of cities present similar testimony here today because it would be almost identical to that presented in the South. * * * Now, as a result of the meeting in the South, I think that we (the League) can say that in general *all of the cities present at that meeting recommended that there be no hasty mandatory legislation, but that there be thorough research, perhaps by the University of California, or whatever agency would be best equipped to do the job, but I think everyone agreed that it would be the university; that the research should be with respect to cooking facilities, with respect to nutritional value of the cooked garbage so that you could determine whether or not it could still be fed to hogs after being cooked, research with respect to composting of garbage, going beyond the question of feeding it to hogs and using it as a fertilizer, through research with respect to the vaccines as mentioned here earlier today by Mr. Forbes,[3] and then lastly, research with respect to disposal through a central grinding facility. * * * There will be no other city presentation at this time, Senator, I think that it would simply be a duplication of what we said down South.*"

At the hearing in Los Angeles, the principal spokesman for the cities was Mr. W. A. Schneider, Waste Disposal Engineer, City of Los Angeles, and he presented to the committee the following statement relative to the problem of disposal of municipal raw garbage in the municipalities of Southern California generally and in the City of Los Angeles specifically.

> " * * * We are pleased that * * * you have afforded the municipalities of the State the opportunity to present statements as to how such legisla-

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[1] S. C. R. No. 69, Chapter 221 (Resolutions), 1951 California Legislature.

[2] See Appendix No. 10 for this file.

[3] Mr. Floyd Forbes, General Manager, Western States Meat Packers Ass'n. For a more complete discussion of the vaccine phase of this problem, see Part I of this report.

tion, if passed, would affect your refuse disposal programs.

"The disposal of municipal raw garbage to hog feeders for feeding swine has been practiced by municipalities and refuse collection and disposal districts in this area for many years. In fact, only two known exceptions to such practice in the whole of Southern California exist at the present time. The *disposal* of raw garbage by this means has in practically all cases resulted in providing a direct or indirect revenue to the municipality and has certainly been the most economically advantageous method available since all other accepted and proven methods impose an expense upon the city. Further, the feeding of garbage has the additional advantage of utilizing a resource that might otherwise be wasted. Therefore, since it is the duty and desire of public officials charged with waste disposal to provide their respective communities with a legal and satisfactory method at the lowest cost, it at once becomes evident why the sale of raw garbage to hog feeders has been so universally adopted.

"The City of Los Angeles collects and disposes of, through sale to hog feeders, approximately 175,000 tons of raw garbage annually. All garbage collected within the city is disposed of in this manner, and the contract sale thereof has resulted in revenues to the city varying from $154,124 to $282,297 annually, and averaging $222,376 annually, during the past 10 years. Each of the city's garbage disposal contracts contains a provision that the contractor shall be released, if he so desires, from the contract if the State enacts legislation prohibiting the feeding of raw garbage to hogs. Information received by the city heretofore from two of its disposal contractors who have conducted feeding tests on cooked garbage in the past indicates that the results of such tests were unsatisfactory from the feeders' viewpoint. Direct information, of course, on this matter may be obtained by your committee from the local hog feeding industry.

"I believe that enforced cooking of garbage would eliminate garbage as a hog food and would also eliminate the hog feeding and processing industries in this area. Under such circumstances a satisfactory alternate method of disposal would have to be found and the facilities provided therefor.

"The other accepted and proven methods of disposal which should be considered are: (1) fill and cover or 'sanitary' fill; (2) incineration; (3) grinding and disposal of the ground garbage into the sewerage system; and (4) dumping at sea. Local conditions within each municipality would determine which of these is the most suitable for that municipality.

"The City of Los Angeles, lacking sufficient suitable dump sites within reasonable hauling distance, would in all probability be forced to undertake disposal by incineration. Such disposal would require that the garbage be collected as wrapped garbage, with in increase in truck equipment and personnel in the collection forces to compensate for the added bulk of the paper wrappings required to provide at least part of the fuel for incinerating the high moisture content garbage, and would require the construction and operation of a system of incinerators for the disposal of the wrapped garbage. Although the City of Los Angeles now has under construction two incinerators, these are being provided for the disposal of combustible rubbish (not garbage) from residential, commercial, and industrial sources within the city.

Although no detailed estimate has been made on the cost of garbage incineration facilities it is reasonable to expect that the cost of providing such facilities would be in the neighborhood of three to four million dollars, and that the estimated operating cost for such disposal would approximate $600,000 annually. It is probable that the necessity of incinerating garbage may also force the City of Los Angeles into the collection and disposal of combustible rubbish by incineration to provide adequate combustibles to support the incineration of the garbage. Such a collection and incineration disposal system for combustible rubbish would require an added estimated capital expenditure of $14,000,000 and an additional $5,623,000 annually for operation thereof, including amortization of capital improvements.

"*Inasmuch as the feeding of uncooked garbage to hogs is not definitely known to be the basic cause of vesicular exanthema in swine*, and since the adoption of legislation prohibiting the feeding of uncooked garbage to swine would so seriously affect the established economies of practically every community in the State, the adoption of such legislation should be approached only with the greatest of care and study. The Special Report of the Department of Agriculture points out, in spite of the fact that feeding of uncooked garbage has been used extensively throughout the Nation during the past several decades, that 'for over 20 years the disease was confined within the borders of California.' This would certainly cast doubt on the assumption that the feeding of uncooked garbage is the true cause of vesicular exanthema in swine. *More investigation to definitely fix the cause or causes of the disease appears to be in order.*

"It is not our desire or intent to continue any practice which is proven to be detrimental to the welfare of the Country as a whole. However, we are hesitant to abandon a practice which has economic advantages to the various communities and which permits the conservation of valuable food materials.

"It is therefore requested that your committee do not recommend legislation prohibiting the feeding of raw or uncooked garbage to swine until such feeding is definitely shown to be the cause of vesicular exanthema, and that in lieu thereof your committee recommend that immediate consideration be given to authorizing an adequate appropriation to support a thorough research program by the University of California and other qualified agencies, of the vesicular exanthema disease in swine for the purpose of determining to the fullest extent possible the causes and means of transmission of such disease."

Referring to the statement of Mr. Schneider as to the revenue obtained by the City of Los Angeles for its garbage, Senator Hatfield, chairman of the committee, and Mr. Schneider had the following exchange:

Senator Hatfield: That has been an increase (referring to Schneider's testimony that revenues received by the City of Los Angeles from the sale of garbage over the past 10 years has averaged $222,-376) in each year—I mean the trend is upward?

Mr. Schneider: No, the trend has been slightly downward during the last few years.

Senator Hatfield: What does that do?

Mr. Schneider: It was as high as around $282,000, which was about our peak for our annual sales.

Senator Hatfield: What was the drop due to?

Mr. Schneider: Well, to several things perhaps. One might be due, and perhaps to a considerable extent, to the fact that we do permit the installation of household garbage grinders in homes on a voluntary basis. There have been quite a few thousands of those units installed in some of our homes.

In addition to that, there has been an increasing trend on the population's part toward the use of canned foods and frozen foods and when they use those types of foods, of course, there are no wastes to go into the garbage can, materially speaking.

Senator Hatfield: How much a ton do you get for the garbage?

Mr. Schneider: It varies. We have four different disposal contracts, one for the central district, one for the valley, one for the western district and one for the harbor. It depends upon the price of hogs. In other words, the price paid the city varies with the price of hogs on the local market with the exception of the central district contract. For about the last year we have been in that contract and we are getting a flat rate of fifty-one cents ($0.51) a ton under that contract, but our average would run in the neighborhood of a couple of cents over a dollar a ton.

Senator Hatfield: Some of the other cities in the area get a higher price, don't they?

Mr. Schneider: Yes, I think that is true.

Senator Hatfield: I understood from the swine people they paid about two to five dollars a ton.

Mr. Schneider: Our experience has been that perhaps those who are operating under contracts that were entered into two or three years ago are getting higher prices, but successively as we have gone out for bids, bid prices have been lower, and one reason for that, of course, is the fact that in this area there was an all over decrease in hog population by the fact that Fontana went out of business. Apparently the number of hogs they had have not been absorbed by the remaining industry, so consequently, there is not the competition, the demand among the hog feeders that there existed at one time. They used to fight for the garbage, and now they don't fight quite so hard. I think that is the reason for the decrease.

Following Mr. Schneider's testimony the committee heard from Mr. Verne Parker, Assistant Director of the Public Works, City of San Diego, Mr. Lawrence Olson, City Manager of Ventura, Mr. J. R. McHenry, Assistant City Manager, Long Beach, Mr. Douglas McKenzie, City Engineer, Pasadena, and Mr. Winston R. Updegraff, Staff Member, League of California Cities. Pertinent excerpts from the testimony of these witnesses follows:

Mr. Parker: ——We (**San Diego**) do have a little bit of an advantage in that we could possibly locate sites for composting if that proved to be the proper method of disposal if our present system of hog feeding were not permitted.

Senator Hatfield: ——is San Diego one of those cities in which the hotel and restaurants have private arrangements with the hog feeders?

Mr. Parker: That is right, but the hog growers haul under a license. Now, in effect, if we had to discontinue this operation we would the first year have to expend for additional equipment because of this collection problem, about $225,000—not for equipment alone, but for the equipment and crews in order to man that equipment and cover the territory.——

Senator Hatfield: How much a ton does the City of San Diego receive for the garbage?

Mr. Parker: That is again like Los Angeles, it is based on a contract. The contract is on a sliding scale dependent on the price of hogs. Momentarily we are collecting $1.90 a ton.

Senator Hatfield: Do you know what the hog feeders pay the restaurants for garbage, or the hotels?

Mr. Parker: No, sir, I do not. In some cases they pay and in some cases the hotels pay to have it hauled away.

Senator Hatfield: Now, the garbage that you collect, the City of San Diego collects, from the homes, do you make a charge, or is that paid for out of the general fund?

Mr. Parker: That is paid for out of the general fund, ad valorem tax charge. It is a service on both rubbish and garbage.

Senator Hatfield: Annually for say '50 or '51 or '52, what was the amount you received in San Diego?

Mr. Parker: Well, during the last fiscal year, they averaged out—that is, the gross sum collected—about $25,000. And, of course, those privateers, as we call them, would supplement that if we were collecting all of it——

Nor. the summation of it, all the cities of San Diego County is pretty well expressed in Mr. Campbell's letter dated December 1, 1952. "In view of the above facts the City of San Diego is opposed to the enactment of the proposed legislation but would be in favor of some legislation which would provide funds for further technical study and a report by the University of California on the control and elimination of vesicular exanthema and on the general problem of garbage disposal. This report should show the annual cost per ton for garbage disposal and the revenues, if any, using the various possible methods of disposal such as feeding to hogs, composting, and disposal in sanitary fill sites "

Mr. Olson: **(Ventura)** Senator Hatfield and Members of the committee: In view of the fact that each city has filed a separate report on the economic problem, and so forth, of their particular city, I am going to make this very brief and just generalize the situation. I might say that I am speaking for five cities in Ventura County representing a population of approximately 65 to 70,000. All of those cities have contracts with individuals that operate hog ranches. The total amount that is paid by all these cities is about $98,000. * * * We tried to approach this matter (alternate methods of garbage disposal) in the very realistic way. As I said previously, we are not trying to match dollars with the well being of our citizens, but we do feel that a real thorough study should be made. This study should be sufficiently broad to determine whether it is a real menace to the well being of our citizens. Also, it should go into the question of whether by quarantine methods that that might serve as a remedy to this situation, and certainly we should go into the economic question from the standpoint of the cities of California. We want to assure you that if after this study the legislation is justified, you can rest assured that as far as the cities in Ventura County are concerned, they want to cooperate in every possible way.

Mr. McHenry: (Long Beach)——Our position is exactly as was stated by Mr. Schneider. The problem in the City of Long Beach is practically identical with the problem in the City of Los Angeles with very few exceptions, the major exception being solids. We have about 25,000 tons of garbage which we dispose of. We feel that it is our duty, our first duty, to dispose of that regardless of the money that is involved, and if this proposed legislation is enacted, then, of course, we will take some other means of disposing of it, but we feel that is our duty. We will probably go to incineration because we do collect all the rubbish as well as the garbage in our municipal government.

Mr. McKenzie: (Pasadena) Pasadena probably is unique in one way in the collection of garbage, in that it is, I believe, the only city in the State of California that collects garbage from the backyard and does not make any specific charge for its service. We also require the wrapping of all garbage, except the garbage collected from the commercial establishments which is collected six times a week.

Now, that makes one differentiation in this proposition of legislation prohibiting the use of feeding of garbage to hogs, in that even if the garbage was wrapped or was cooked, either by the person that is taking the garbage for the use of hog feed or by the city, it would have to be collected unwrapped. You couldn't cook it with paper, and that poses a question of our entire system of collection—it would have to be revised. The vehicles that are used for collection are load packer units, and we could not use those because the particular pile design will not take garbage unless it is wrapped. There are other costs which are pointed out in the report here that we have just completed. A short time ago a new transfer loading station, which would have to be written off because it wouldn't be of very great use if we don't operate the collection and transfer it to the trucks of the carrier, which is a contract basis, and because of our garbage being required to be wrapped. The City of Pasadena *pays* for that garbage to be collected to the tune of $500 per month to have it hauled away because of the fact that it is wrapped, as contrasted to Mr. Schneider's presentation in the City of Los Angeles where they might get paid for it.

Similar to Los Angeles, we do collect all of the garbage. There is an ordinance that no one else can collect garbage. And we do not collect, as Mr. Schneider said in Los Angeles, any combustible rubbish. That is all collected by private contract. That would have to be used in an incinerator as he explained to burn the garbage. You couldn't burn the garbage by itself.

We have determined that the most economical way as pointed out in this brief report (report to committee by City Manager Don C. McMillian, contained in appendix of this report) is the installation of a municipal garbage grinder, which as I pointed out before, if we used that method, the initial cost would be somewhere in the neighborhood of $100,000 initial cost of the facility itself, and an additional $50,000 initial cost for the replacement of the existing vehicles that make the collections. That method would, as stated in the report, require that the garbage be collected unwrapped because Mr. Ryan has notified us that they could under no circumstances take wrapped garbage into the county sanitation district plant.

Mr. Updegraff: (Staff Member, League of California Cities) Senator Hatfield, and gentlemen of the committee: In the interest of time and because we have so many witnesses here that couldn't possibly get on, we will yield the balance of the time, but I would like to summarize if I may, by stating that the position of the cities at this present time based on the returns that we have had from these 46 Southern California cities could be summed up in perhaps three generalities:

1. That we seek a determination of the causes of vesicular exanthema by an organization such as the University of California.

2. That there be extensive and comprehensive research to assist the cities in the realistic solution of the problem that would face them in the event of the prohibition of the present practices.

3. That there be a realization on the part of the Legislature of a critical financial problem that is posed to the cities in the event the change is required.

In addition to the testimony which Mr. Updegraff presented to the committee at its Los Angeles hearing, he provided the committee with a summarization of the statements which were presented to committee in written form. Mr. Updegraff summarized the written presentations as follows:

"The statements from the cities were unanimous in agreeing that it was not the desire or intent of the city officials to seek to continue any practice which

is proven to be detrimental to the general welfare. The statements developed these points:

"(1) Recommendation that the proposed legislation be approached with the greatest care and study, as it would seriously affect the established economy of the cities to require abandonment of a practice which has economic advantages and which permits the conservation of valuable waste food materials.

"(2) Recommendation that there be no mandatory legislation until there is definite proof that raw garbage feeding is the cause of vesicular exanthema.

"(3) Recommendation that an adequate appropriation be made to support thorough research program, both as to the whole problem of municipal garbage disposal, and the hog diseases.

"(4) That it would cost the cities millions of dollars to provide for the known alternative methods of disposal, which are land-fill, incineration, grinding for disposal through sewers, composting, and barging to sea.

"(5) That many cities are barred from the use of land-fill disposal by the regulations of another state agency, the Water Pollution Control Board.

"(6) That many cities do not have incinerators or the means to finance them.

"(7) That detailed information applicable to California cities is lacking as to central grinding and disposal through sewers, particularly as to the effects on treatment plants.

"(8) That study and research are needed as to composting.

"(9) That disposal by barging at sea is so unsatisfactory that this method has been abandoned."

CITIES REPORT ON GARBAGE TONNAGE AND REVENUE

Statements of the 46 Southern California cities, and six other cities, are contained in this report as appendix. Following is a listing of them and the annual tonnage of garbage disposed of as hog feed and the revenue received from the sale thereof. Although only in 22 of the 52 cities is there listed an amount as revenue collected by the city from the sale of this garbage for hog feed, it should be emphasized that the cities' spokesmen declare that an indirect gain is obtained, as a result of the garbage having a value as hog feed, through either a lower cost of garbage disposal or having it disposed of at no cost.

City	*Tons of garbage * (annual)*	*Revenue from garbage*
Alhambra	6,000	---
Anaheim	1,200	$1,200
Berkeley	1,800	11,000
Beverly Hills	5,000	1,750
Blythe	215	---
Brawley	[a]	1,200
Burbank	7,000	11,000
Carlsbad	[b]	---
Compton	6,240	---
Corona	1,000	---
Coronado	1,500	5,000
El Monte	5,000	---
El Segundo	1,080	---
Escondido	800	---
Fillmore	1,528	---
Fresno	3,285	5,000
Fullerton	1,440	---
Gardena	2,100	---
Glendale	12,400	---
Holtville	[c]	---
Laguna Beach	1,306	1,800
Laverne	416	---
Long Beach	25,000	45,000[d]
Los Angeles	175,000	222,376
Manhattan Beach	2,200	---
Monrovia	4,000	---
National City	2,000	100
Needles	[c]	---
Oceanside	1,500	3,000
Ojai	190	---
Ontario	[c]	---
Oxnard	[e]	---
Palm Springs	685	800
Pasadena	16,500	
Pomona	3,100	2,600
Rialto	[c]	---
Riverside	1,460	1,800
Sacramento	3,000	12,000
San Buenaventura	[c]	---
San Diego	44,000	25,000
San Fernando	1,500	---
San Jose	2,800	---
San Luis Obispo	[c]	1,665
Santa Monica	10,000	16,000
Santa Paula	[c]	---
Signal Hill	[f]	---
South Pasadena	2,000	2,000
Stockton	35,000	6,000
Torrance	3,500	---
Upland	700	1,575
Vernon	1,200	---
Whittier	2,200	---

* Garbage disposed of to hog ranchers.

[a] 2,000 cubic yards (includes trash).

[b] Newly incorporated, no data.

[c] No data presented.

[d] $66,000 in Fiscal Year 1952.

[e] 4,000 cubic yards.

[f] Signal Hill incinerates all garbage.

MUNICIPAL PUBLIC HEALTH POLICY COMMITTEE URGES INVESTIGATION

In further support of the position of the League of California Cities the Joint Committee was presented with an excerpt from the minutes of the meeting of the Municipal Public Health Policy Committee of the League of California Cities, held on October 19, 1952 at San Diego, California:

"VESICULAR EXANTHEMA OF SWINE

"The committee met jointly with three engineers designated by the Engineering Department of the League of California Cities. These were J. C. Albers, City of Glendale; Clayton W. Paige, City of Burbank, and Clyde W. Coryell, Commissioner of Board of Public Works, Los Angeles.

"The Joint Legislative Committee on Agriculture and Livestock Problems, chaired by George J. Hatfield, Senator, after studying the problem of V.E., is planning to have hearings on V.E. and the feeding of raw garbage to swine. After discussing the matter carefully, the League's Joint Committee concluded: (1) They are in accord with the desire to control vesicular exanthema in swine. (2) They are opposed to the feeding of raw garbage to swine. (3) They would like to abolish the nuisance that exists in the feeding of raw garbage to swine. However, the group stated that before the practice would be discontinued, it is necessary that a practical method be devised so that garbage could be rendered safe to be fed to hogs, or to devise other methods of garbage disposal. Otherwise a more vicious nuisance within the city would be created by attempting to abate an existing one. Therefore, they recommended:

"(1) That the University of California be asked to undertake a study on the disposal of garbage. Included in this study should be work done to devise a practical method of rendering garbage safe to be fed to hogs.

"(2) That a study be undertaken to determine how much money would be lost to cities if state legislation were adopted without a practical method of rendering garbage safe to be fed to hogs included.

"(3) That at present, the board of directors of the league ask the staff to appear at hearings regarding this matter and oppose hasty action without the inclusion of the above."

PART V

GARBAGE DISPOSAL IN LOS ANGELES COUNTY

At the hearing on December 9, 1952, in Los Angeles, conducted by the Joint Legislative Committee on Agriculture and Livestock Problems, testimony was received from representatives of the sanitation districts of Los Angeles County and the office of the Los Angeles County Engineer and Surveyor. The interest of these agencies in the problem of control and eradication of vesicular exanthema and raw garbage was stated as follows:

(Asst. General Manager, Los Angeles County Sanitation District) **Mr. Compton**: We have no interest there (selling garbage to hog farms) at all. We were merely requested to indicate to the committee other methods that are developing in our district for disposal of garbage. But we have no interest in hog farms. We have no interest in vesicular exanthema, nor do we know anything about it. We are merely here to indicate the trend in our districts as to the disposal of garbage by garbage grinders.

(Deputy County Engineer, Los Angeles County) **Mr. Pickett**: I represent the county engineer who was invited by your committee to participate in this discussion of the garbage disposal problem. Our department is interested in the question from the standpoint of the technical and economic problems which may develop in Los Angeles County if legislation such as that which is under discussion here today is enacted to prohibit feeding of raw garbage to hogs.

REFUSE DISPOSAL IS A PROBLEM OF LONG STANDING

The problem of efficient and economical collection of refuse (combustible and noncombustible), rubbish and garbage and the disposal thereof is one of primary urgency to most local governments. With or without garbage feeding hog ranches this collection and disposal problem perplexes local officials. It is not the intent of the Joint Legislative Committee on Agriculture and Livestock Problems in this report to either directly or indirectly contend that local governments would not be affected technically or economically as a result of the prohibition of feeding raw garbage to hogs. However, a purpose of this part of the report is to bring out the point that in considering the elimination of raw garbage as a feed for swine in an effort to control and eradicate vesicular exanthema there is *not* being shifted to local government a new problem, but rather these officials *already have the problem* of refuse and rubbish collection and disposal before them and that *garbage is only a part of this very large and complex problem.* In this regard consider the statements of Mr. Pickett before the Joint Legislative Committee on December 9, 1952:

Mr. Pickett: " * * * The garbage represents about 1,600 tons of material a day, and we have in the area at the present time about 10,000 tons (waste materials) a day to get rid of."

At another point in his testimony Mr. Pickett stated:

Mr. Pickett: "——for the fundamental reason that we see this garbage problem as a fact of the over-all problem of waste disposal in the county——"

The comments of Mr. Compton on this point at the same meeting are also of interest:

Mr. Compton: ——We are getting, as I say, 120 tons of garbage a day through our sewage system, and the sewage system takes the garbage without any difficulty. Our treatment plant handles the garbage without any difficulty. We recover the sludge from the garbage after it is digested and sell it for fertilizer.

UNIVERSITY OF CALIFORNIA SANITARY ENGINEERING RESEARCH

Further, the comments contained in a bulletin[1] dated December, 1952, issued by the Sanitary Engineering Research Project of the University of California, serve to point up the fact that collection and disposal of refuse constitutes a problem of long standing upon which local officials have expressed a need for technical assistance and which need has been recognized and met with appropriation in the past by the California Legislature. The bulletin has this to say:

> "Collection and disposal of refuse is a responsibility of urban society which is fundamental to a pleasant environment, and to adequate environmental sanitation for the protection of public health. Because of the aesthetic nature of refuse in its varied forms, the problems relating to its collection and disposal have frequently been relegated to the background of municipal activity. Relatively little information is available in the literature or elsewhere to aid municipal officials in the planning and design of an economical and efficient refuse collection and disposal system to fit local conditions.
>
> "The League of California Cities and the Committee on Conservation, Planning, and Public Works of the California Legislature (Dickey Committee) recognized the need for more basic engineering information regarding refuse collection and disposal practices, and with other sanitary engineering investigations at the University of California were included in Statute 1575 of the 1949 Legislature. With these funds ($100,000) the Sanitary Engineering Research Project began a comprehensive study of numerous aspects of municipal refuse collection and disposal and published some of its findings in a series of bulletins. Bulletins 1 and 2 dealt with the subject of composting, while Bulletins 3, 5,

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[1] An analysis of refuse collection and sanitary land-fill disposal, Sanitary Engineering Research Project, University of California.

and 6 reported the results of studies of municipal incineration practice. The investigation herein reported involved an engineering evaluation of refuse collection and disposal by the sanitary landfill method. Other studies on composting of municipal refuse are in progress.''

Chapter 1575 (1949) appropriated $100,000 to the regents of the University of California ''to be available * * * for expenditure until June 30, 1951, in providing for and carrying on research relating to the technical problems of disposal of sewage, garbage and industrial waste and for the dissemination of such research information to all persons within the State affected by or interested therein.'' Chapter 1575 (1949) cited as one of the reasons which necessitated this measure the following: ''Since in many areas of the State physical methods for such sanitary disposal, within economic limits, are not known, it is essential that a program of research to determine those methods be undertaken at once.''

In addition to this appropriation the University has been expending approximately $60,000 annually during the four-year period 1949-1953 for sanitary engineering research at Berkeley.

The bulletin continues as follows:

''This report is intended to be a comprehensive evaluation of refuse collection and of certain disposal operations obtaining in California. It is believed that it presents the first extensive analysis of refuse collection practice since the monumental work of Rudolph Hering and Samuel A. Greely published in 1921, and dealing principally with the horse-drawn refuse collection wagons prevalent at that time. For the first time, perhaps, a simplified method is presented for the economic evaluation and design of refuse collection systems.

''For the purposes of this report, and in accordance with an analytical approach to the subject, it has been found convenient to make the following classification of solid and semi-solid municipal wastes commonly known as refuse:

GARBAGE

''Garbage is that refuse or waste material resulting from the preparation, cooking, and consumption of edible foodstuffs. It may also include spoiled food and wastes from produce markets. Solid and semi-solid putrescible wastes from food processing establishments may also be classified as garbage. Garbage is always subject to regularly scheduled collection in urban communities.

COMMERCIAL SWILL

''Commercial swill includes the semi-liquid food wastes that result from the operation of restaurants, hotels, etc. It is often collected separately in its semi-liquid state and sold to farmers for use as hog or other animal feed.

DOMESTIC REFUSE

''Domestic refuse is the waste material other than garbage resulting from the operation and maintenance of a household, and subject to regularly scheduled collection by a sanitation agency. Frequently, domestic refuse is considered with respect to its component parts; namely, combustible and noncombustible refuse. Domestic refuse and garbage together are often called combined refuse.

COMMERCIAL REFUSE

''Commercial refuse includes the waste material other than commercial swill resulting from the operation of business or commercial establishments. It consists primarily of paper and cardboard packages, cartons, miscellaneous cans, and other debris. Commercial refuse may also be classified with respect to its combustible and noncombustible constituents. Frequently the paper component of commercial refuse is segregated and collected separately for salvage purposes. Commercial refuse is usually subject to regularly scheduled collection.

RUBBISH

''The term rubbish is used to refer to waste material or refuse that is generally not subject to periodic collection and is removed from the premises either by the householder himself or by the sanitation agency at the request of the householder, usually for an extra fee. The term usually designates all refuse material not specifically included in other classifications. Materials included in the classification may be surplus lawn and yard trimmings; large pieces of crockery; broken bricks and concrete; worn out furniture, stoves, and children's toys; wooden boxes and crates; rubber tires; and large metal containers, such as 5-gallon cans, etc.

ASHES

''The term ashes designates the residue from the burning of coal, wood, or other combustible material in homes, stores, or commercial establishments for the purpose of heating, cooking, or disposing of the combustible waste material. In most California communities, and in particular the thirteen cities studied in this investigation, the problem of disposal of ashes is practically nonexistent because very little ash producing fuels are used for cooking or heating. Ash disposal is, of course, a problem in those California cities which employ incineration for refuse disposal.

* * * * * * *

HOG FEEDING

''* * * In the State of California the California Crop and Livestock Reporting Service estimated in 1948 that approximately 40 percent of all (California raised) slaughter hogs are fed raw garbage.

''It has been estimated [2] that the average incidence of trichinous infection of all hogs in the United States is approximately 1.5 percent, whereas the incidence in garbage fed hogs is about 5.7 percent, in contrast with approximately 0.95 percent in hogs fed mainly on forage, grain, and other feeds. The greatest single source of infection is reported to be infected pork scraps found in the garbage.

''The incidence of trichinous infections in humans has not been accurately defined, but was reported by

Wright[2] in 1940 to be about 16 percent. Roughly one in every six persons examined by the National Institute of Health was infected with the parasite. California, Massachusetts, and New York led the nation in the number of cases of clinical trichinosis reported up to July 1, 1938 according to Wright.[3] At the time all three states had reported over 500 clinical cases of trichinosis, with New York reporting more than 1,000 cases. Evidence indicates the heaviest incidences of trichinosis lie in areas along the North Atlantic seaboard and the Pacific coast, areas in which the feeding of uncooked garbage to swine is carried on extensively.

"The opinion held by the majority of public health workers is that the feeding of raw garbage to hogs constitutes at best a hazard to public health. The American Public Health Association adopted a resolution in 1938 urging state and local health officials to 'take active steps to encourage the use of methods of garbage disposal other than disposal by feeding to swine, or to encourage the cooking of municipal garbage before its consumption by swine, as a health measure for the protection of the citizens of the municipality.'

"The basic theme of the garbage hog feeding industry is conservation of valuable foodstuffs. Sullivan et al.[4] report that a ton of garbage supplemented with a small amount of grain will produce about 50 pounds of pork. The University of California Agricultural Extension Service in its recently published Circular 166, "The Garbage Hog Feeding Business in California," points out the financial opportunities in the business, the basic needs for its successful initiation, and the proper management necessary for an adequate profit.

"*It appears that the objectives of public health authorities on one hand and the hog-feeders on the other are at present widely divergent. Unfortunately a solution to the differences satisfactory to the interests of both does not appear to be likely in the immediate future. The most probable answer appears to lie in the cooking of garbage in order to destroy trichinae larvae before feeding to hogs.* Wright and Bozicevich[5] concluded from garbage cooking experiments that trichinae larvae in pork scraps up to three inches in thickness will effectively be destroyed by boiling garbage for 30 minutes in an open container and allowing the garbage to cool gradually.

"Objections raised to the cooking of garbage for hog feeding are primarily associated with the additional cost of the cooking operation and the lack of palatability and lower food value of cooked garbage. Experience in England and Europe with the sterilization of garbage prior to hog feeding indicates no appreciable loss in palatability or food value compared to raw garbage. There are, however, important differences in European and American garbage, and there is no doubt but that cooking of garbage makes it more difficult for the animals to detect and reject unsuitable materials.

CALIFORNIA PRACTICE

"Each of the 13 cities included in the survey dispose of their commercial garbage or swill to hog feeders. Two of the cities, Burbank and Long Beach, employ separate garbage collection for both residential and commercial areas and deliver the garbage to a municipal transfer station where it becomes the property of the hog feeder. It is his responsibility to convey the garbage to his farm and to return the container or truck in a sanitary condition.

"Bakersfield, Oroville, Santa Rosa, and Stockton permit hog feeding by private operators on the disposal site. The cities of Berkeley, Fresno, Lodi, Palo Alto, Riverside, Sacramento, and Watsonville dispose of the commercial garbage or swill to hog feeders, but no hog feeding is permitted at the disposal site.

"The income derived by the cities from contract or licensed swill collection varied from 0.2 percent of the gross operating cost of the refuse collection and disposal system at Fresno to 2.2 percent at Bakersfield. It should be noted that these figures do not include the additional investment that would have been required for collection and disposal of the swill had it been handled by the city. The City of Burbank received an income from the sale of all garbage delivered to the municipal transfer station for the Fiscal Year 1949-1950 which amounted to 6.5 percent of the operating cost of the department. This figure does not, however, include any additional expense incurred either by the separate collection of garbage and refuse or by the operation of the transfer station.

"The economic analysis of separate collection of garbage and/or hog feeding should include the actual cost to the citizens of collection and disposal. This may not actually be represented by the balance sheet at the city hall. *If the principal motivation for garbage feeding of hogs is the profit derived by the hog feeder, it is proper for cities also to derive an equitable return from their wet garbage.*

"*In general, hog feeding at the refuse disposal site is not a desirable practice.* Considerable objection results from aesthetic considerations such as the production of foul odors. Such conditions necessitate isolation, and thus a long haul is required if the undesirable effects on the community are to be ameliorated. Hog feeding at the disposal site raises public health considerations apart from trichinae infection. The presence of hogs on the site provides suitable breeding grounds for flies, thus increasing the possibility of the transmission of fly-borne diseases and fly nuisance.

"Garbage cooking, or other trends in the handling of garbage which are currently being advocated, may upset the economic and conservation motives of present garbage hog feeding practice. Composting and the disposal of garbage through grinders via sewerage systems are becoming more widespread. Though practical difficulties may arrest the development of either method, they both have the possibility of a decreased unit cost to the municipality, and both may result in partial recovery of valuable organic matter. *A significant advantage is that neither method contributes a hazard to the public health as is attributed to the practice of raw garbage hog feeding.* It is too soon to anticipate the effect on present disposal practices of some of these possible new developments."

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[2] Wright, W. H., "A Survey of Municipal Garbage Disposal Methods as Related to the Spread of Trichinosis," Public Health Reports (June 14, 1940).

[3] Wright, W. H., "The Epidemiology of Trichinella Spiralis Infestation and Measures Indicated for the Control of Trichinosis," Journal of American Public Health, February, 1939.

[4] Sullivan, W., E. Maharg, and E. H. Hughes, "The Garbage Hog Feeding Business in California," University of California, Agricultural Extension Service, Circular 166, April, 1950. This report is contained as Appendix No. 14, herein.

[5] Wright, W. H., and J. Bozicevich, "Experiments in the Cooking of Garbage for the Destruction of Trichinae in Pork Scraps," Public Health Reports, March 5, 1943.

EXCERPTS FROM JOINT LEGISLATIVE COMMITTEE HEARING TESTIMONY, DECEMBER 9, 1952

In order to present a more complete statement of the refuse disposal question in Los Angeles County, there is presented herewith excerpts from the testimony presented by Mr. Compton and Mr. Pickett to the Joint Committee on Agriculture at its Los Angeles meeting in December, 1952. There is also included pertinent excerpts from reports referred to by these officials:

Senator Hatfield: I would like to hear from the sanitary districts—Mr. A. M. Rawn of the Los Angeles County Sanitation Districts.

Mr. Compton: Senator Hatfield and the committee, I will apologize for Mr. Rawn. I am Mr. Compton, assistant. We have been asked to appear before the committee to indicate to you what interest the sanitation districts of Los Angeles County have in garbage disposal. The districts are not by law made responsible for the disposal of garbage within the district areas.

However, the boards of directors of the various districts in the last few years requested that Mr. Rawn, chief engineer, submit a report as to the possibility of the disposal of refuse including garbage from the districts, and he has submitted a report to the districts which I would like to place in your files here, if I may.

Senator Hatfield: Yes.

Mr. Compton: This report[6] reviews the various methods of disposal of garbage in the districts, such as land fill, incineration, grinding, barging to sea, and other methods. We haven't determined or don't propose to indicate which method is the best. We felt after consideration of all methods that the grinding method offered the most economical solution if there had to be a solution of garbage disposal other than that now used.

SUMMARY OF STATEMENT OF FACTS AND FINDINGS OF AFOREMENTIONED REPORT, AS RELATED TO GARBAGE

"The vast network of trunk sewers already available for sewerage will permit disposal of garbage slurry to the sewers, thereby solving a very formidable transportation problem for the districts.

"Separately collected garbage may be discharged at a garbage grinding station and there reduced to a slurry and disposed of into one of the trunk sewers of the district; such a station may be rendered odor-proof by treatment of the exhaust air.

"No foreseeable difficulties are anticipated from this form of garbage disposal, sewer transportation and treatment.

"It is estimated that the total cost for the disposal of garbage into and through the sewers and sewage treatment works will amount to $1.10 per ton of wet garbage.

"Garbage solids so disposed of will increase the gas and fertilizer production at the central sewage treatment works.

"Because grinding of garbage to the sewers presents what appears to be a most appropriate method of disposal the practice of separating garbage from other refuse at the household should be continued.

HOME GARBAGE GRINDERS

"The rapidly increasing number of home garbage grinders in the district area is testimony to the usefulness and convenience of this innovation.

"It is stated by those who produce home garbage grinders that about 10 percent of all the homes tributary to the district's system are so equipped.

"The increase in total B. O. D. and suspended solids of residential sewage, because of grinding garbage to the sewers, may be respectively, 47 and 39 percent. The increase in flow is hardly measurable.

"No major economies in garbage collection will accrue from the installation of home garbage grinders until entire areas are equipped with them and garbage collection is no longer necessary.

"It would probably be inadvisable for the districts, as such, to finance or install home garbage grinders. However, the district might act as agent for the home owner and thereby secure the lowest cost and the best maintenance.

"Home garbage grinders cannot be justified on the basis of economy alone.

GARBAGE GRINDING TRUCKS

"It may be possible to develop a garbage collection truck which will incorporate the feature of garbage grinding and subsequent discharge from the truck directly to a sewer.

"The use of such a truck would probably be limited to the semirural areas in the sanitation districts where population density is low and homes far apart.

"The use of such a truck would greatly minimize the travel time to transfer stations or other points of disposal.

GARBAGE FEEDING TO HOGS

"Garbage from 31 percent of the cities in the United States with populations over 5,000 is wholly or in part fed to hogs, but *the practice is on the decline.*

"Hog ranches or hog feeding pens are not adaptable to urban areas, particularly when garbage comprises the feed.

"There are 13 hog ranches in the district area or immediately adjacent to it.

"*Neighboring counties effectively prohibit by law the establishment of garbage feeding hog ranches within their boundaries.*

"It is felt that the *Newhall-Saugus* or *Mojave Desert* areas of Los Angeles County *are the only remaining locations appropriate* to garbage feeding of hogs and that the Newhall-Saugus area is about the practical limit for hauling the garbage.

"*Transportation of garbage* from the district areas through a half dozen or more municipalities to the Newhall-Saugus area will probably add to traffic difficulties, odor problems, and may *pose a health menace.*

"Air-tight transfer vehicles accelerate the decomposition of garbage, producing particularly offensive odors and, to some extent, reducing its food value.

"*Trichinae are 10 times as prevalent among garbage-fed hogs as among grain-fed hogs.*

"The United States Public Health Service estimates that one in every six persons in the United States is infected with trichinae.

"Pasteurization of the garbage by cooking prior to feeding would probably render it unfit for hog food because of the high percentage of citrus wastes, which the hog will not eat."

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[6] This report is entitled "Report Upon the Collection and Disposal of Refuse in the County Sanitation Districts of Los Angeles County, California." A full summary thereof is contained in Appendix No. 13.

Senator Hatfield: May I ask this question? Sanitary districts are districts that are formed in Los Angeles County of unincorporated territory?

Mr. Compton: No, sir, they include incorporated and unincorporated.

Senator Hatfield: They include incorporated territory?

Mr. Compton: Yes, we have points of some 20 cities in our district, Senator, part of the City of Los Angeles, all of the City of Huntington Park, all of Pasadena—our district extends from the middle portion of San Gabriel Valley to the ocean on the west.

Senator Hatfield: Insofar as garbage disposal is concerned, the sanitary districts are only active in the sections that are unincorporated?

Mr. Compton: No, the sanitation districts as far as garbage disposal is concerned, as I said, we are not legally charged with the disposal of any garbage.

Senator Hatfield: I understand that. Is there not some arrangement under which the garbage in some of the built-up unincorporated areas is disposed of?

Mr. Compton: Yes, we have had that forced upon us whether we have liked it or not through the house grinder. That is the way we are getting the garbage we get now. That amount has increased quite markedly. As you probably know, in the Lakewood area in one of our districts, there is probably the largest collection of home grinders in the United States. At the present time we estimate there are about 125,000 homes that are equipped with garbage grinders. We get about 120 tons of garbage a day from those grinders into our sewage disposal system. That is the way we collect the garbage in our districts, and it is continually increasing.

Senator Hatfield: Then, your districts do not sell any garbage to the hog farms?

Mr. Compton: No sir, we have no interest there at all. We were merely requested to indicate to the committee other methods that are developing in our district for disposal of garbage. But we have no interest in hog farms. We have no interest in vesicular exanthema, nor do we know anything about it. We are merely here to indicate the trend in our districts as to the disposal of garbage by garbage grinders.

Senator Hatfield: Did I understand you to say in the Lakewood District there are 125,000?

Mr. Compton: No, in all of our entire districts. In Lakewood District 100 percent of the homes have them.

Senator Hatfield: How many homes are in that district?

Mr. Compton: I don't know just how many there are at the present time. I would say 60,000 maybe, something like that, but they all have garbage grinders. We are getting, as I say, 120 tons of garbage a day through our sewage system, and the sewage system takes the garbage without any difficulty. Our treatment plant handles the garbage without any difficulty. *We recover the sludge from the garbage after it is digested and sell it for fertilizer.*

Senator Hatfield: You sell it for fertilizer?

Mr. Compton: Yes, sir. The sludge is sold for fertilizer.

Senator Hatfield: Well, now, Lakewood is a community, you say, of about 60,000?

Mr. Compton: It is a big unincorporated area just northeast of Long Beach. If you take the whole general area it is called Lakewood, I would say there might be that many homes around that area.

Senator Hatfield: And all their garbage——

Mr. Compton: All through that subdivision that went in down there, Senator, they put garbage grinders in the homes when they were built.

Senator Hatfield: Put the garbage grinders in the home and put down through the sewer and the sanitary district collects it from the plant as sludge and sells it for fertilizer.

Mr. Compton: We estimate there is 120 tons a day. It is just an indication of a growing method, and a growing trend in our district.

Now, we don't know about the other areas, but in our districts as far as garbage disposal is concerned, that is the picture.

Senator Hatfield: Any questions? Thank you very much.

Mr. Pickett:[7] Mr. Hatfield and members of the committee, I am here this afternoon representing Gene Fox, County Engineer and Surveyor, who was invited by your committee to participate in this discussion of the garbage disposal problem. Our department is interested in the question from the standpoint of the technical and economic problems which may develop in Los Angeles County if legislation such as that which is under discussion here today is enacted to prohibit the feeding of raw garbage to hogs.[8] I brought with me some charts and diagrams and maps which will illustrate the complexity of these problems, and I could not hope to adequately discuss the whole problem in the time available.

For this reason I would like to briefly summarize the major factors involved and to illustrate these factors by these charts and graphs.

Following this summary I will be glad to answer any questions that you might have, and would like to leave with you a copy of the technical report on the subject of "Rubbish and Refuse Disposal for Los Angeles County," which was prepared in 1949 by the county engineer. I would like to leave that report for the fundamental reason that we see this garbage problem as a part of the over-all problem of waste disposal in the county.

The garbage represents about 1,600 tons of material a day, and we have in the area at the present time about 10,000 tons a day to get rid of.

---

[7] See Appendix No. 12, article by Mr. Pickett entitled "End of Garbage Can Seen in Los Angeles Waste Disposal Program."

[8] See Appendix No. 11, Report of the Los Angeles County Engineer entitled "The Hog Ranch Problem in Los Angeles County," March, 1951.

Senator Hatfield: Now, may I ask this question. When you speak of 1,600 tons, that is in unincorporated territory?

Mr. Pickett: No, that is in the metropolitan area of Los Angeles County, including the cities, and we are concerned because the disposal cannot ordinarily be made in the cities, but must be made in the unincorporated area, very largely the hog ranches or the unincorporated areas.

Senator Hatfield: All right.

Mr. Pickett: At the present time more than 1,600 tons of garbage are collected each day from this area. On the graph (Table No. 11) in the upper right-hand corner of the group, we have indicated the anticipated rate of increase in the total garbage which would be produced in Los Angeles County. That is the upper red line of the graph and you will observe that when anticipated in 1970 the people of the Los Angeles metropolitan area will create in excess of 2,500 tons of garbage per day.

Of this quantity about 750 tons will come from restaurants and markets, and about 1,800 tons will be developed in the homes of the area.

In the heavy red line on the graph, we have attempted to indicate the relationship between the total amount of garbage produced and the amount of garbage which logically should go to hog farms. This estimate of net garbage to the hog farms is based upon the assumption that hog ranches will continue in operation. It takes into account the probable rate of acceptance of garbage grinders in our homes, of which Mr. Compton just spoke.

Our restaurants and our food processing industries, because those industries are also installing garbage grinders, we have taken that into account also.

On the graph (Table No. 10) in the lower left hand corner of the group we have indicated the rate of acceptance of major household appliances involving the use of electricity. We have shown the percent of homes which were wired for electricity starting back in 1880 and continuing to the present time.

We have indicated the rate of acceptance of washing machines. We have indicated the rate of acceptance of vacuum cleaners; the rate for radios; and the rate of acceptance of refrigerators. These graphs indicate the rate at which the installation of such units were first accepted. To the right of the data on other appliances, we have indicated the manufacturers' estimates as to the rate of acceptance of garbage disposal units.

TABLE NO. 10

RATES OF ACCEPTANCE—MAJOR HOME APPLIANCES

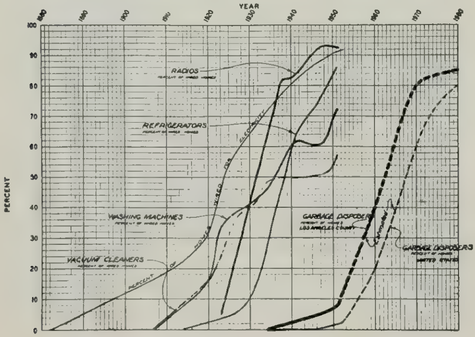
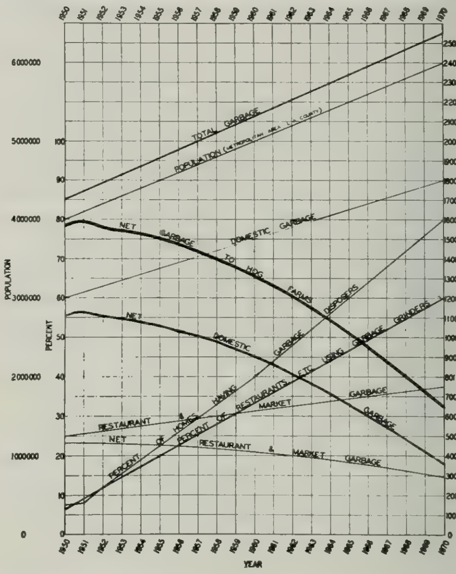


TABLE NO. 11

ESTIMATE OF FUTURE GARBAGE DISPOSAL REQUIREMENTS FOR THE METROPOLITAN AREA OF LOS ANGELES COUNTY



At the present time such units are being installed at the rate of more than 10,000 homes per month throughout the county, and the manufacturers are very optimistic and indicate that they will be able to continue such installations until 1970, when the rate will gradually be reduced to the ultimate point of saturation of 85 percent in 1980. In other words, they do not expect that we will ever get complete installation of garbage grinders in all homes and restaurants. If this optimistic program for the installation of garbage grinders is realized, then an ever increasing percentage of our garbage will be discharged to the public sewer system and the quantity available to the hog ranches will steadily decrease.

However, I would like to point out that even with the most optimistic estimate of the manufacturers of garbage grinders we must still plan to provide for the disposal of 650 tons per day of garbage to hog ranches in 1970. That is indicated in the upper right hand graph. (Table No. 11)

This estimate, in my opinion, is extremely conservative, and it is much more likely that a quantity ranging from 1,000 to 1,200 tons per day of garbage will be available in 1970 for feeding to hogs.

In making these estimates we must assume, of course, that the hog ranches are not eliminated and *it is quite important to our economy that we don't eliminate them and that we continue to feed garbage to hogs.*

In view of the situation presented to your committee, however, we must evaluate the probabilities and determine what other methods are available to us if the feeding of raw garbage is prohibited.

Land Reclamation Projects. *Fundamentally there are several methods readily available to us. First of all, garbage can be economically handled in connection with other refuse of the community in land reclamation projects or land fills.* This has been demonstrated at Riverside where the city engineer reports that the city is reclaiming land within four miles of the city hall at a cost of 35 cents per ton of garbage and refuse delivered to the site. This operation is close to residential development and is being operated without nuisance in the reclamation of lands for park purposes.

A number of sites suitable for disposal of garbage as well as other types of waste exist in marginal land adjacent to the Los Angeles metropolitan area. The principal difficulty which we face is the problem of obtaining these sites, securing the necessary zoning requirements and operating permits.

Incineration of Garbage. *Another method of disposal which may be resorted to is that of incineration of garbage.* At the present time the idea of incineration is not generally approved by the public in the Los Angeles area. Also the costs of incineration are high, accepted costs being at least $2 per ton of material delivered to the incinerator site. That is in comparison to the 35 cents per ton which is accomplished at Riverside.

Some of the cities which are operating their facilities for disposal of refuse at less than full capacity, report the costs of operation of their incinerators are as high as $3.80 per ton, but expect that these costs will be materially reduced as quantities increase. These operating costs do not ordinarily include provision for amortization of the capital investment required for construction of an incinerator, and it may be interesting to note and emphasize what other speakers have said to the effect that an incinerator capable of burning 400 tons of combustible refuse and garbage in 24 hours will require an investment of at least $1,000,000.

Composting. *A third alternate method for disposal of garbage would require the developing of facilities for composting.*

The University of California at Richmond has obtained a surprising result in this field and it now appears possible that composting might provide a very reasonable and inexpensive method for the handling not only of garbage, but other organic wastes of our metropolitan area.[9]

Grind and Run Through Sewerage System. Now, Mr. Compton has mentioned the fact that the *county sewer system of* the sanitation districts are *handling considerable quantities of garbage* now. Remember the area is served by the City of Los Angeles. And Mr. Schneider has indicated to you what the problems would be for the city to handle garbage in their sewer system.

These four possibilities assume that hog ranches would be eliminated. It does not appear desirable, however, that we resort to this drastic step. Elimination of hog ranches would have a serious effect not only upon the hog ranchers, but upon related industries such as slaughterhouses, meat processing plants, distributing plants, and by-products plants, due to the difficulties and expense involved in the shipment of hogs from midwestern states for processing.

Such a step would also, of course, involve considerable economic loss to the cities and require large expenditures for installation of facilities and operation of alternate facilities by the cities and the communities.

For this reason it would seem desirable to thoroughly investigate all possibilities for cooking of garbage. Years ago local hog feeders attempted to cook garbage, but these efforts were unsuccessful, apparently because of the large percentage of citrus rinds contained in the material.

It seems probable that the wet rendering process which these hog feeders employed at that time produces a much different foodstuff from the dry rendering process utilized in England and reported to you by Professor Gotaas and others.

Senator Hatfield: That was the Cunningham pudding.

Mr. Pickett: Yes, sir. We have received detailed reports relative to the success of this process in England, and it seems very possible that a modification of the English method might prove successful for the cooking of garbage in Los Angeles County, and that the economics might justify adoption of such a program.

Before undertaking such a program, however, it is essential that research be undertaken and that data be secured as to the most efficient and economical methods that can be developed. For this reason we would recommend very strongly that a research program be undertaken immediately by qualified scientists to determine certain things. First, get a modification of the English method of cooking garbage by the dry rendering process or something that can be successfully adapted to Los Angeles conditions. Second, if garbage is cooked under a plan to be developed by the research, what will be the result from the economic standpoint. Will the hogs that are fed this cooked material gain in weight as much as they would from raw garbage? Will they be free of disease and will the cost of cooking prove economically feasible?

We need to know those facts. Because of the statewide significance of this problem it would seem entirely reasonable that your committee should take necessary action to have such a program undertaken at the earliest possible date.

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[9] Technical Bulletin No. 1, Composting for Disposal of Organic Refuse, Institute of Engineering Research, University of California, July, 1950.

Because of the shortage of time available I have not attempted to dwell upon other features of this problem which might result in the elimination of our hog ranches. Some of these results would undoubtedly be an increase of cost of collection and disposal of refuse. Other factors might tend to reduce costs of collection and disposal of the over-all wastes of the community, and we might find certain other advantages from the standpoint of elimination of nuisance in the more efficient and satisfactory operation that might be developed. I thank you.

Senator Hatfield: Well, now the testimony of the previous witness, I understood him to say that, for instance, Lakewood was, whatever number of homes out there, 40 or 50 thousand, were practically 100 percent equipped with grinders?

Mr. Pickett: That is correct.

Senator Hatfield: Now, that is the point. In other words, while you have had an increase in the number of grinders in Los Angeles County, it has not been uniform throughout the entire territory?

Mr. Pickett: No, very largely the units have gone into new homes although there are an ever increasing number going into the older existing homes. There is a tremendous acceptance of them in restaurants.

Senator Hatfield: In restaurants?

Mr. Pickett: Yes, sir.

Senator Hatfield: Now, in metropolitan Los Angeles, in other words, in Los Angeles City, the grinders have not been introduced with the frequency that they have, for instance, in Lakewood and some of these other territories?

Mr. Pickett: They have been increased in the same ratio where the new housing projects have gone in. For example, some of these big, new projects in the westerly portion of Los Angeles are also 100 percent equipped with garbage grinders.

Senator Hatfield: Do they completely grind all the garbage and then that goes down the sewers and is collected in the sewage disposal plant or whatever it is?

Mr. Pickett: That is right.

PART VI

TRICHINOSIS

Although the emphasis of the investigation conducted by the Joint Committee on Agriculture was directed at the problem of vesicular exanthema in swine and the possible eradication thereof through the processing of raw garbage prior to feeding it to swine, testimony was presented to the effect that raw garbage was an important source of human trichinosis.

CALIFORNIA CONFERENCE OF LOCAL HEALTH OFFICERS

Dr. Roy Gilbert, President of the California Conference of Local Health Officers,[1] appeared before the Joint Committee on December 9, 1952, in Los Angeles, and presented a resolution expressing the attitude of the health officers of California. This resolution reads as follows:

> "There are two major phases of public health involved in this problem—controlling trichinosis by the better handling of pork, and the disposal of wastes.
>
> "Whereas, Hogs fed on raw garbage are an important source of human trichinosis; and
>
> "Whereas, The practice of feeding raw garbage to hogs usually creates a nuisance because of the difficulty in controlling insects, rodents, and odors; therefore, be it
>
> "*Resolved*, That the California Conference of Local Health Officers join with the State Department of Agriculture and other interested groups in urging the requirement that garbage be rendered safe by appropriate and adequate methods before it is permitted to be fed to hogs. The conference also urges that further research in methods of garbage treatment from the broad public health point of view be undertaken by an appropriate agency; be it further
>
> "*Resolved*, That the California Conference of Local Health Officers recommend that the State Department of Public Health confer with the State Department of Agriculture on meeting this problem jointly."

In addition, Dr. Gilbert testified as follows:

Senator Hatfield: Now, you are concerned apparently with the question only of trichinosis in the adoption of this resolution?

Dr. Gilbert: Trichinosis and the sanitation in relation to the operation of hog ranches.

Senator Hatfield: You were not concerned with vesicular exanthema because that is not transmittable to humans that has been attributable to the feeding of raw garbage, do you know?

Dr. Gilbert: That—as a matter of fact I think the health officers, that is a good many of them, question whether that is the actual source, whether it is entirely attributable to the feeding of raw garbage. There is quite a difference of opinion.

Senator Hatfield: I assumed that. In other words, you don't think it is accurate to say in any sense that the feeding of raw garbage is the thing that starts these things, that you may not have it in other ways, but it is one of the important agencies that is conducive to the transmission of the disease?

Dr. Gilbert: I think without a doubt that is generally conceded.

Senator Hatfield: I am asking you whether there is any other disease that may affect human beings other than trichinosis?

Dr. Gilbert: None that is of major importance. There are a number of parasites.

Senator Hatfield: There are a number of parasites?

Dr. Gilbert: Yes, the various types of tape worm, for example, in hogs, but that isn't necessarily tied up to garbage. I believe trichinosis is the major problem.

Senator Hatfield: Your resolution says that you urge that further research in methods of garbage treatment from the broad public health point of view be undertaken by an appropriate agency. What would you consider an appropriate agency?

Dr. Gilbert: The University of California, for example, and the school at Davis would be in a position to carry on the type of research that we are interested in. The first one is the epidemiology of these diseases.

Senator Hatfield: You would consider the University of California an appropriate agency?

Dr. Gilbert: Yes, very much.

Senator Hatfield: Do you want to present some other health officers? You have a map, do you?

Dr. Gilbert: This is the map you were referring to a few moments ago. I offer it to you for whatever value it is to the committee. It shows the locations of hog ranches in Los Angeles County Health Department Area, and it shows how the trend has been away from the populated areas in the placement of these ranches, where they won't be as much of a terrific nuisance to people surrounding them, because as subdivisions move up against a hog ranch, why something has to be done about it, and we had to choose sites in the local area where these hog ranches could be placed without disrupting the citizenry too much. The names of the ranches are listed here, there are thirty-seven of them.

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[1] Conference consists of the full-time and part-time health officers from all jurisdictions in the State of California.

Dr. E. M. Bingham, Health Officer, San Joaquin Local Health District, and immediate past president of the California Conference of Local Health Officers, appeared before the joint committee at its meeting in Sacramento on December 18, 1952, and stated:

"Mr. Chairman and members of the committee. I think I will not try to elaborate on Dr. Halverson's remarks, but I might give you a little of the problem that faces the rural health officer in a rural county where hogs are fed garbage. It may be in many cases the prohibition of feeding of raw garbage will be synonymous with the prohibition of feeding any garbage. I think that has to be recognized. But, as garbage feeding ranches are now operated feeding garbage in any form continues to be an odor nuisance as well as a fly nuisance. In San Joaquin County we have had excellent cooperation from the city manager and the ranch operators.

"We first reduced the exposure time of this garbage to the hogs to 48 hours and then required them to bury it. A year ago we reduced the time to 24 hours, and we still have neighborhood complaints of flies and odors. We have recommended that the city manager do not renew his contract with the garbage feeding ranchers when it expires this next year, and we think he will follow our recommendation even though it means a financial loss to the city.

"We see no other way in our thickly populated areas of feeding garbage to hogs without running into this problem of a constant public health nuisance so far as flies and odors are concerned."

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

Dr. Wilton L. Halverson, Director of the California Department of Public Health, appeared before the Joint Committee in Sacramento on December 18, 1952, and entered into the record the position of the Department of Public Health regarding treatment of garbage prior to feeding it to swine, particularly as related to the disease of trichinosis.

Dr. Halverson: Mr. Chairman and members of the committee, first of all, I would like to thank you for an opportunity to talk about this because it is something that has been considered by the public health people in the State for a long time, and we have had definite convictions about it, so we would like to have it on record.

First of all, here is a list (Table No. 12) showing the number of cases of trichinosis that have been reported in California each year since 1930. This wouldn't look like it means very much because the number of cases is small, but you also have in the record the fact that when examinations of diaphragms of human beings who have died of other causes are made, that between 22% and 28% of normal individuals, or at least individuals who have not died of trichinosis, have evidence that they have had the disease:

TABLE NO. 12

TRICHINOSIS—INCIDENCE OF AND DEATHS FROM BY YEAR, 1930, 1951

Year	*Cases*		*Deaths*
1930	151		7
1931	40		2
1932	84		5
1933	64		-
1934	51		-
1935	71		3
1936	40		1
1937	63		1
1938	65		2
1939	41		2
1940	51		3
1941	80		1
1942	22		1
1943	19	2 *	-
1944	34		1
1945	14		1
1946	23		-
1947	32		-
1948	39		-
1949	23		1
1950	21		-
1951	38		-

* Military cases.

SOURCE: California Department of Public Health.

In other words, it is probable that at least 10 percent of us had had trichinosis sometime or other, but the diagnosis was passed off as the flu or a stomach upset or something of that kind.

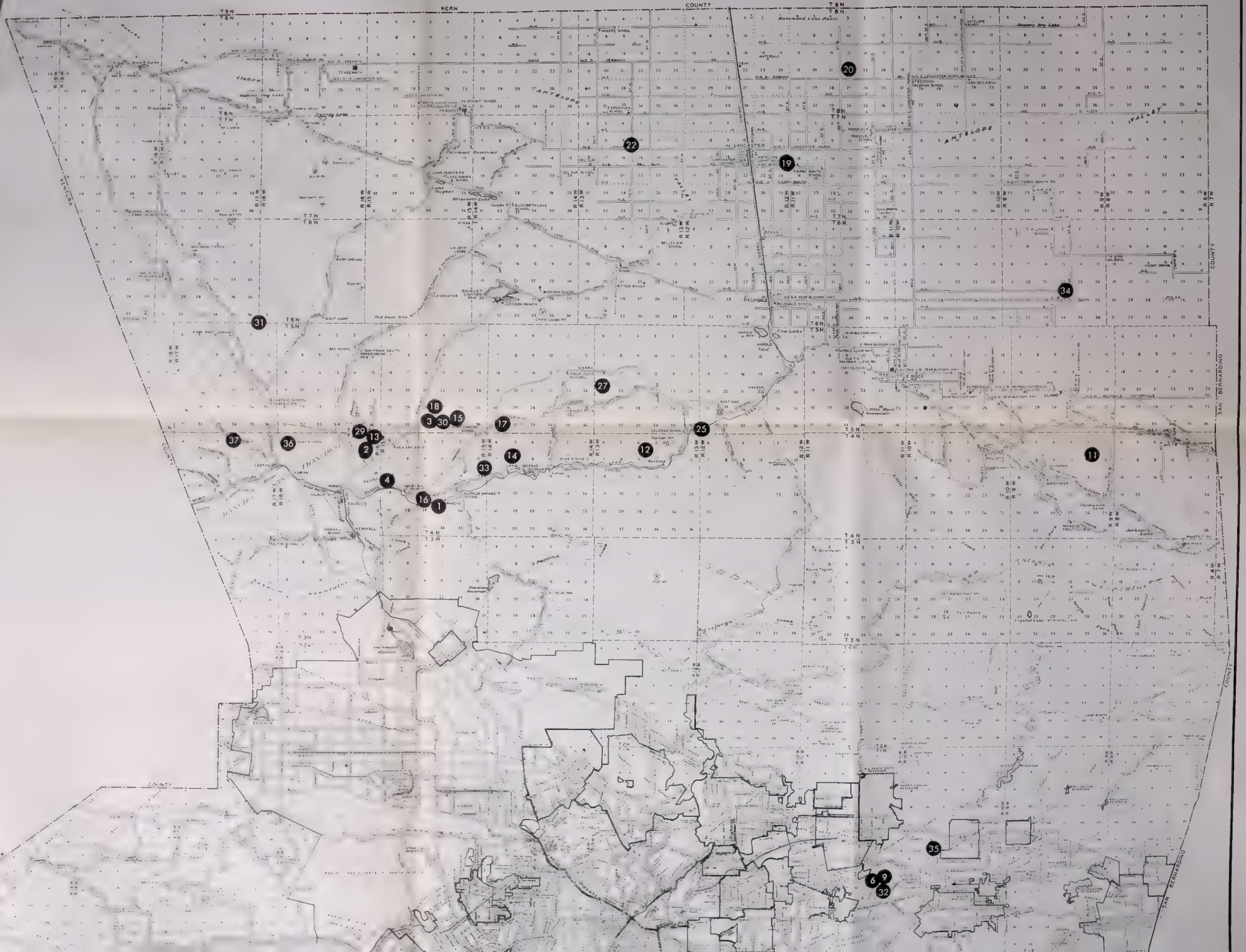
The symptoms of this disease the first few days while the organism is in the gut, is just like any other case of food poisoning. Then in 10 days to two weeks, when these larvae have matured in the gut, they in turn male and female produce other larvae and these go into the blood stream and then find lodgment all over the body, but they live only in the voluntary muscles and there they are found, of course, on death, or in the case of animals that are used for food are found there on slaughter. They live for varying periods of times in the muscles.

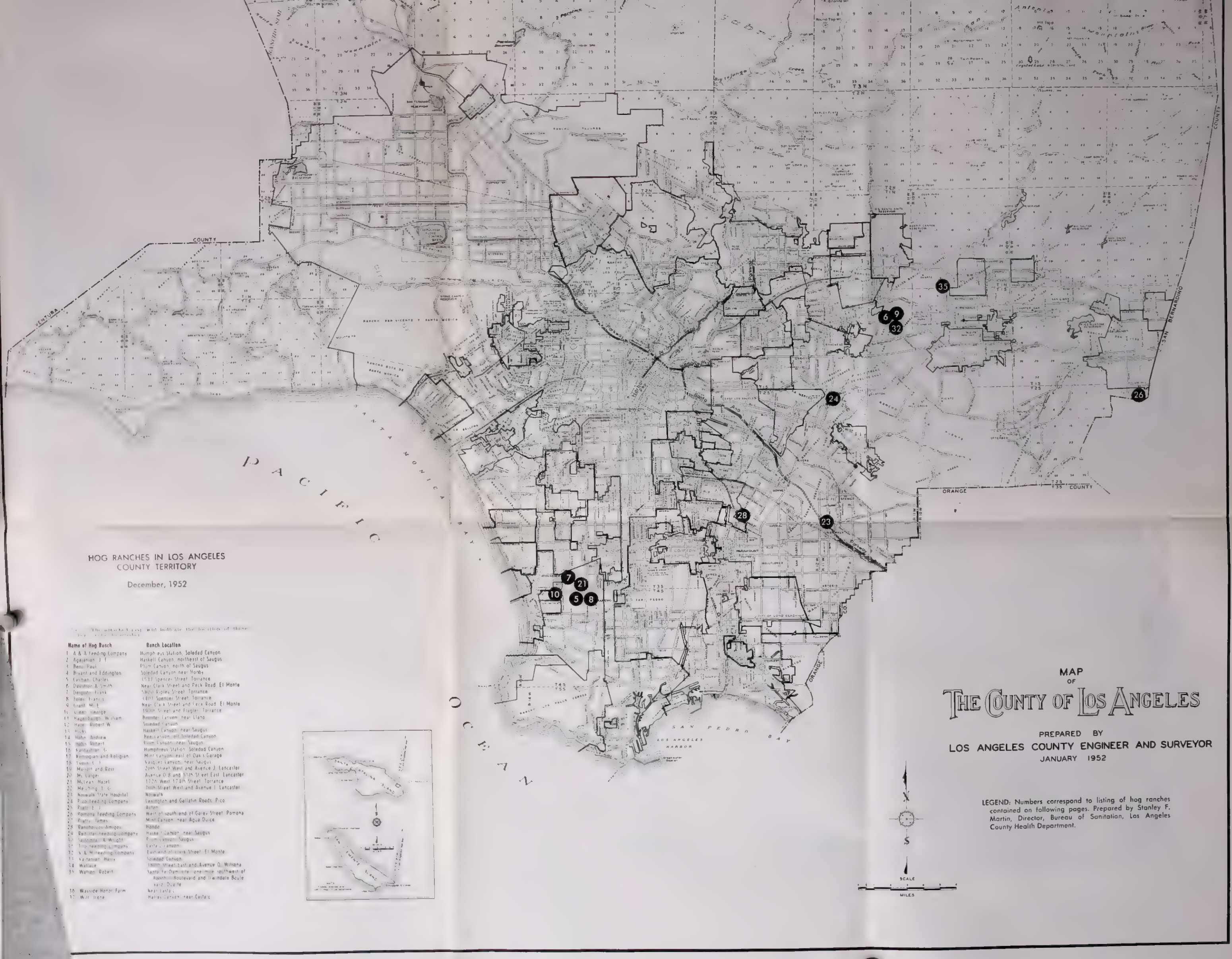
Now, it is the general belief then that a great many people are sick with trichinosis who were never diagnosed as having trichinosis and they may never even have gone to their doctor, but pass it off as the flu or as a stomach upset or some other type of illness which didn't require medical attention, or if it did, in the diagnosis trichinosis was not considered.

We believe, however, the fact that there are so many individuals who have had the disease as shown by the post mortem examination, is reason enough to have concern about this. Therefore, the State Department of Public Health and all the local health officers have had the feeling that since it has been shown very definitely that hogs fed raw garbage are infected a great deal more commonly than hogs grain fed or fed cooked garbage, that there should be a regulation of this practice and so far as is possible that hogs should be fed—that is, hogs that are fed

MAP NO. 2

HOG RANCHES UNDER INSPECTION BY THE LOS ANGELES COUNTY HEALTH DEPARTMENT





HOG RANCHES IN LOS ANGELES COUNTY TERRITORY

December, 1952

[illegible]

Name of Hog Ranch	Ranch Location
1 A & A Feeding Company	Humphreys Station, Soledad Canyon
2 Agajanian, J. T.	Haskell Canyon, northeast of Saugus
3 Benz, Paul	Plum Canyon, north of Saugus
4 Bryant and Eddington	Soledad Canyon near Honby
5 Casman, Charles	17537 Spencer Street, Torrance
6 Davidson & Smith	Near Clark Street and Peck Road, El Monte
7 Dengato, Frank	5800 Ripley Street, Torrance
8 Foley, Francis	18011 Spencer Street, Torrance
9 Grant, M. E.	Near Clark Street and Peck Road, El Monte
10 Green, George	190th Street and Flagler, Torrance
11 Hagenbaugh, William	Boulder Canyon, near Llano
12 Haze, Robert W.	Soledad Canyon
13 Hicks	Haskell Canyon, near Saugus
14 Hohn, Andrew	Bee Canyon, off Soledad Canyon
15 Hohn, Robert	Plum Canyon, near Saugus
16 Kardashian, C.	Humphreys Station, Soledad Canyon
17 Kemoogian and Koligian	Mint Canyon, east of Oak's Garage
18 Lyon, C. F.	Vasquez Canyon, near Saugus
19 Marcott and Ross	20th Street West and Avenue J, Lancaster
20 McCaiger	Avenue O-8 and 55th Street East, Lancaster
21 McLean, Hazel	1725 West 174th Street, Torrance
22 Meaching, E. G.	20th Street West and Avenue I, Lancaster
23 Norwalk State Hospital	Norwalk
24 Pico Feeding Company	Lexington and Gallatin Roads, Pico
25 Pratt, E. J.	Acton
26 Pomona Feeding Company	West of south end of Garey Street, Pomona
27 Pratt, James	Mint Canyon, near Agua Dulce
28 Rancho Los Amigos	Hondo
29 Ben Hur Feeding Company	Haskell Canyon, near Saugus
30 Salomon & Wright	Plum Canyon, Saugus
31 Tri Feeding Company	Castaic Canyon
32 V & M Feeding Company	East end of Clark Street, El Monte
33 Vartanian, Harry	Soledad Canyon
34 Wallace	150th Street East and Avenue Q, Wilsona
35 Watson, Robert	Santa Fe Dam site, one mile southwest of Foothill Boulevard and Irwindale Boulevard, Duarte
36 Wayside Honor Farm	Near Castaic
37 Will, Irene	Hasley Canyon, near Castaic

MAP OF THE COUNTY OF LOS ANGELES

PREPARED BY
LOS ANGELES COUNTY ENGINEER AND SURVEYOR
JANUARY 1952

LEGEND: Numbers correspond to listing of hog ranches contained on following pages. Prepared by Stanley F. Martin, Director, Bureau of Sanitation, Los Angeles County Health Department.

garbage should be fed garbage that is properly treated to kill this organism.

Senator Hatfield: Now doctor, the matter was presented to by the State Department of Agriculture as their recommendation in the form of a report that we put across this desk, I believe in the special session in August, if I remember correctly, and it was based upon the spread of vesicular exanthema outside of the State of California.

Dr. Halverson: Yes.

Senator Hatfield: Now, as I understand it, and I would like to have you correct me if I am wrong, as I understand the scientific testimony we have had, the medical testimony, vesicular exanthema is not transmittable to humans. In other words, from the standpoint of any infection that might come from that disease, you are not interested in that as a matter of the Department of Public Health.

Dr. Halverson: That is correct, Senator. However, it may be that there is some transmission to humans. I shouldn't say it that way. I should say it has not been proven that it is not transmitted because it really hasn't been studied, but from the day-to-day evidence of watching men who are in contact with this disease, the veterinarians and the farmers, there doesn't seem to be any evidence that it is transmitted to humans.

Senator Hatfield: And your principal interest in any compulsory cooking of garbage is based primarily upon trichinosis?

Dr. Halverson: Yes sir.

Senator Hatfield: Is there any other disease other than trichinosis, the spread of which might be accelerated or aided by the feeding of raw garbage?

Dr. Halverson: Well, so far as humans are concerned, I don't know of any other.

Senator Hatfield: That is the main one. I have here a clipping that appeared in the paper, Associated Press dispatch from Chicago, December 15, which reads:

> "Various ways of combating trichinosis, a disease traced to raw garbage, were suggested at a conference of medical men today. These included killing trichina larvae in garbage by cooking for 30 minutes, quick freezing, X-rays, microscopic analysis of slaughtered hogs, and a ban on interstate shipments.
>
> "Authorities agree that raw garbage is the source of the disease. Hogs fed on garbage pass the disease on to humans who consume the pork. Dr. Vernon B. Link, medical director of the United States Public Health Service, Communicable Disease Center in Atlanta, Georgia, told the conferee, 'It would appear we are failing in our obligation when the best solution we can offer is to advise thorough cooking of garbage. We urge the eradication of the disease by a proper solution.' Dr. Link said that more than 300,000 persons a year may contract trichinosis, but only 366 cases were reported last year."

I would like to ask you if you agree with those statements.

Dr. Halverson: Yes, I think I do, excepting those points about quick freezing of the hog meat and the question of skin testing the hog. I am not an expert on that. I am just talking about the part there that deals with humans.

Senator Hatfield: This report of the trichinosis cases from the years 1930 to 1951 are all cases in California?

Dr. Halverson: Those cases are the ones that were officially reported in California.

Senator Desmond: I haven't heard all of the testimony, Dr. Halverson, but I would like to ask just one or two questions. Isn't it a fact, Doctor, that trichinosis is a disease that is communicated from hogs to human beings?

Dr. Halverson: That is right.

Senator Desmond: All right. Then, if hogs are carriers of trichinosis, would you concede that proper cooking of pork would eliminate the communicable possibilities of trichinosis from hogs to the human?

Dr. Halverson: Certainly I would.

Senator Desmond: Then, why don't you tell the public the truth? Why don't all of you health people say that pork as of and by itself, whether it is fed with garbage or whatnot is not a carrier of trichinosis when it is well cooked? It eliminates it when it is cooked, doesn't it? Now, you are not talking about the garbage being cooked. You are talking about the meat being cooked that is going to be eaten by human beings?

Dr. Halverson: We talk about both, Senator.

Senator Desmond: Isn't it a fact, Doctor—let me ask you this direct question, that regardless of how the hog is fed or fattened and if that pork is eaten by human beings and if it is properly cooked and thoroughly cooked, it kills all the germ of trichinosis?

Dr. Halverson: That is correct.

Senator Desmond: All right, that is all I want to know.

Dr. Halverson: I want to have in the record——

Senator Hatfield: Doctor, may I ask this question. You are looking not merely to preventing the transmission of the disease from the pork that is eaten, but you are looking to the eradication of the disease entirely. Would you not then have to consider the question of cooking of garbage?

Dr. Halverson: You certainly do.

Senator Hatfield: Now, go ahead and explain.

Dr. Halverson: There is evidence of what has transpired over the years, say for the last twenty years from certain cities and on certain hog farms where garbage is fed as cooked garbage rather than raw garbage, that is, the incidence of trichinosis has decreased. It has also been shown that the number of hogs slaughtered over the Country as a whole now have less trichinosis than 20 years ago excepting in the areas where uncooked garbage is fed to the hogs.

Senator Hatfield: In other words, the evidence is that the incidence of trichinosis is found in those localities in which raw garbage is cooked?

Dr. Halverson: That is correct.

UNITED STATES PUBLIC HEALTH SERVICE

In 1937 and 1938 the United States Public Health Service printed a series of reports presenting the findings of studies on trichinosis.[1] Summaries of three of these reports are presented below:

I. STUDIES ON TRICHINOSIS

The Incidence of Trichinosis as indicated by Post-Mortem Examinations of 300 Diaphragms.

"A study of 300 diaphragms from cadavers, coming from 10 hospitals in Washington, D.C., and one hospital at Baltimore, Maryland, shows 41 diaphragms infested with trichinae, an incidence of 13.67 percent.

The samples include cases from five federal hospitals to which patients are sent from all over the United States, and from six Washington hospitals with cases originating widely over the United States, and they run the range of childhood to old age, military and civil life, association with land and sea, sane individuals and mentally deranged hospitalized cases, black and white, male and female, and high and low economic-social status.

All diaphragms were examined both by the direct microscopic method and by the digestion-Baermann method, since both methods have special value for certain types of infestation and both have certain limitations, and two methods being supplementary in these respects.

Examinations were made on a quantitative basis of trichinae per gram of diaphragm muscle examined. On this basis the series is arbitrarily divided into seven groups of lighter to heavier infestations, as a basis for tentative assumption and for further consideration.

Live trichinae predominate in light infestations and dead trichinae predominate in heavy infestations, and the theory is tentatively suggested that the rapidity of calcification may be proportional to intensity of infestation.

On the basis of 1,778 cases reported up to the present time, the writers conclude that an indicated incidence of approximately 12.5 percent, an unweighted average, is a conservative figure, probably definitely too low. If this figure is indicative of incidence throughout this Country, there are probably several million persons in the United States who are infested with trichinae, among whom are possibly several hundred thousands who have had clinical trichinosis never diagnosed as such, and there are possibly several thousand deaths annually from this cause.

The following point is emphasized: That the United States apparently has the greatest problem of trichinosis of any country in the world, a problem involving, in one way or another and in some degree, several million persons. The incidence of man is greater than the incidence of garbage-fed hogs."

II. STUDIES ON TRICHINOSIS

The Role of the Garbage-Fed Hog in the Production of Human Trichinosis.

"Garbage-fed swine have trichinae between three and five times as frequently as do grain-fed swine, and hence are specially important as sources of human trichinosis.

Trichinosis in swine is apparently traceable to the eating of uncooked pork scraps in garbage, table scraps, swill, and similar things, much more often than it is traceable to the eating of rats by swine.

The garbage-feeding industry, as ordinarily carried on, is dangerous to the health of man and livestock, esthetically objectionable, and often economically unsound.

Suggestions are made for the elimination of the dangers and nuisances associated with the garbage-feeding industry and with the feeding of table scraps and similar things on the farm. *Cooperation between scientists, practicing physicians, engineers, packers, and the swine industry is recommended as the best attack on the problem.* (Emphasis added.)

III. STUDIES ON TRICHINOSIS

The Past and Present Status of Trichinosis in the United States, and the Indicated Control Measures.

"Our analysis of the *trichinosis problem* in the United States indicates *human trichinosis rests primarily* on a *basis of swine trichinosis*, and *swine trichinosis rests primarily* on a *basis of raw or inadequately cooked pork scraps in garbage, table scraps, swill, etc.*, the rat having only a minor and not definitely ascertained role in the production of swine trichinosis.

The United States has the greatest problem of trichinosis in the world, a fact that follows from our high level of prosperity, with a *resultant garbage pail rich in pork scraps, which are fed to swine in garbage-feeding plants and in small hog lots. The best solution* of the problem is *keeping raw* and *inadequately cooked pork scraps out of the feed of swine*. The control measures invoked in the past 50 years have not visibly lowered the incidence of trichinae in man and swine, and a decrease from such figures as 13 to 18 percent infestation in swine in former years follows from a sharp decline in the feeding of offal, which has resulted from a rising level in sanitation around slaughter houses for reasons other than the control of trichinosis.

The control of trichinosis calls for improvements in methods of raising swine, and these improvements should be specified by the packers as requisites to be met by swine growers before swine can be purchased for marketing as pork and without the need for specific measures to destroy trichinae that may be present in the pork. If the packers and swine growers will take their share of the task of eliminating the dangerous practice of feeding raw and inadequately cooked pork scraps to swine, they can play a large role in controlling trichinosis, eliminating that hazard to the public health, and protecting the swine industry and the packing industry from repercussions that may be expected in the next few years as a result of increased interest in trichinosis, the establishment of a high incidence figure on a wider basis, the development of better diagnostic methods, the detection of many more clinical cases of the disease, and a consequent publicity that cannot fail to affect unfavorably the market for swine and pork. Useless publicity and ill-considered legislation are not the correct control measures for trichinosis, and at this time the packer and the swine grower should be called in as cooperators in the control of trichinosis.

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[1] Prepared by Maurice C. Hall, Chief of Division of Zoology, National Institute of Health, U. S. Public Health Service.

A planned and directed campaign, coordinated by the United States Public Health Service and the Federal Bureau of Animal Industry, should be carried out by state, county, and city public health and livestock sanitary officers to eliminate the practice of feeding raw and undercooked pork scraps to swine, and to establish nation-wide meat inspection by professional, trained personnel.

CALIFORNIA REGULATIONS ON TRICHINOSIS

Reportable.

Section 2622. The local health officer shall make an investigation to determine the source of infection. If the suspected source is a commercial food product, the health officer shall report the fact at once to the State Department of Public Health. There are no restrictions on case or contacts.

DESCRIPTION OF DISEASE

Identification. Confined to persons who have eaten raw or insufficiently cooked meat or meat products, containing viable trichinae. Characterized by onset of variable intensity according to the amount of infected meat eaten and the abundance of trichinae in the meat. Nausea, vomiting, or diarrhea may be present. Muscle soreness or pain, edema of face and eyelids, laryngitis, subcutaneous hemorrhages, cough, pain in the chest, difficulty in swallowing, and labored breathing may occur, even pneumonia or involvement of the central nervous system in some cases. Fever is usual, not unlike that in typhoid fever. Eosinophilia is usually marked. It may occasionally be absent in overwhelming infections and in individuals suffering from concomitant bacterial or virus infections. The symptoms are extremely variable.

Etiologic Agent. Trichinella spiralis.

Source of Infection. Uncooked or insufficiently cooked pork or pork products. Occasionally meat of fox, wolf, or bear. Domestic rats are highly infected.

Mode of Transmission. Only through consumption of meat, usually pork, containing viable larvae.

Incubation Period. Usually the onset occurs nine days, with wide variation between 2 and 28 days, after ingestion of the infective meat. In heavy infections gastrointestinal symptoms may appear in 24 hours.

Period of Communicability. The disease is not transmitted from man to man.

Susceptibility and Resistance. Susceptibility is general. Neither natural nor acquired immunity is known to occur in man.

Prevalence. The parasite is widespread, about one in every six necropsies showing infection. Clinical cases probably occur more frequently than is indicated by morbidity reports and the disease is probably often confused with other illnesses. No selection by age, sex, race, region, season, or climate except as these affect the eating of insufficiently cooked flesh of infected hogs.

CALIFORNIA: Home prepared sausage or undercooked pork have been the usual sources of trichinosis. Within the 1940-1949 period 338 cases were reported. Nine of these cases were fatal. Of these, 258 were single sporadic cases and 80 cases occurred in groups around a common source. These 80 cases were from 16 outbreaks of an average of five cases per outbreak.

Home prepared sausage was considered the source of five outbreaks involving 42 cases while mettwurst, salami and linguisa sausages were given as sources for four outbreaks involving 18 cases.

LABORATORY SERVICES

Complement-fixation test on blood specimens.

Examination of suspected meat for larvae *Trichinella spiralis.*

Collection of Specimens: Blood Specimens. After three weeks of the disease, collect aseptically approximately five ml. blood and place in sterile vial. Special containers will be supplied upon request to the laboratory, or the standard ''Wasserman'' mailing outfit may be used. Mark accompanying report slip plainly ''For Trichinosis Complement-fixation.''

Meat. Collect *lean* portions of suspected meat, place in suitable container, and mark plainly ''For Trichinosis.''

Complement Fixation. False positive complement-fixation reactions in trichinosis are very rare, therefore, a positive report is probably confirmatory of clinical diagnosis.

Doubtful positive findings suggest the necessity of submitting further specimens taken several weeks later in the disease. Negative findings on a single specimen should not be considered conclusive. Repeated specimens should be submitted as complement-fixing antibodies may appear later in the course of the disease.

It is sometimes difficult to establish the presence of trichinae in suspected meat, especially in ground pork products. A negative result is not entirely conclusive. In the absence of other parasitic infections, the high eosinophilia may be of diagnostic aid.

Biopsy Material. Examine in local laboratory. Direct microscopic examination of a biopsied sample of deltoid or gastrocnemius muscle, pressed or digested in artificial gastric juice, may detect larvae after the twenty-first day of infection. Occasionally larvae may be found in the blood or spinal fluid.

CONTROL MEASURES

General. Inauguration of local and state meat inspection to assure adequate processing of all pork products not processed under federal inspection, and customarily eaten without further adequate cooking by the consumer.

Encouragement of farmers and hog raisers in the use of standard swine sanitation practices which will reduce opportunity for trichina infection in swine, such as:

a. Control of rats, particularly on farms and around hog-raising establishments and stockyards.

b. Burial or other adequate disposal of rat and swine carcasses to prevent hogs from feeding on them.

c. Burning, burial, or other adequate disposal of swine offal to prevent swine or rats from feeding on it.

Elimination of the current practice of feeding uncooked garbage and offal to swine and the adoption and enforcement of suitable laws and regulations ensuring cooking such material before its consumption by swine.

Cooking of all fresh pork and pork products by the consumer, at a temperature and for a time sufficient to allow all parts of the meat to reach a temperature of at least 65.6 degrees C. (150 degrees F.), unless it is known that these meat products have been processed under federal or other official regulations adequate for the destruction of trichinae.

Low temperatures maintained for a designated period, in central portions of pork, are believed to be effective in killing all trichina larvae which may be present.

The Infected Individual, Contacts, and Environment: Recognition of the Disease. Clinical evidence, confirmed by laboratory tests.

Isolation. None.

Concurrent Disinfection. None.

Terminal Disinfection. None.

Quarantine. None.

Immunization. None.

Investigation of Source of Infection. Effort should be made to trace source of infection in pork and pork products believed to be involved in groups of cases.

PUBLIC HEALTH NURSING RESPONSIBILITIES

Chiefly educational regarding preventive aspects.

SOURCE: Manual for the Control of Communicable Diseases in California, California State Department of Public Health, 1952.

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APPENDIX NO. 1

SOME FACTORS IN THE IDENTIFICATION OF THE VESICULAR VIRUSES*

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The current outbreak of Vesicular Exanthema (V.E.) of swine, which was first reported in Nebraska about the middle of June, spread rapidly withing five to six weeks to include 16 states from the East to the West Coasts. Because the disease nearly approached the seriousness of foot-and-mouth disease (F.M.D.), Secretary of Agriculture C. F. Brannan declared an emergency permitting the proper agencies of the U. S. Government to take measures directed towards eradication of the infection.

Since the vesiculating diseases, V.E., F.M.D., and vesicular stomatitis (V.S.) so closely resemble each other, which makes differential diagnosis clinically impossible, means for accurate identification are of extreme importance. There are two methods commonly employed in differentiating the vesicular group of viruses (1) the animal inoculation tests, and (2) the complement fixation test.

ANIMAL INOCULATION TESTS

This method is dependent upon the inoculation of a number of species of animals with the infectious material and the production of the typical disease in only those animals known to be susceptible to a given virus. Table I presents a list of the animal species commonly employed in differentiating the three important diseases. Theoretically, a definite and accurate diagnosis should be possible with such a scheme; however, with the increased knowledge of viruses and careful observation of their behavior in outbreaks in the past, this is not always the case. Dr. J. Traum, who has had considerable experience with diagnosis of the vesicular diseases, states that sometimes it is extremely difficult to arrive at a definite conclusion from the results of inoculation of especially one group of animals and frequently supplementary assistance from the laboratory would have been greatly appreciated.

The literature contains accounts of adaptation of F.M.D. virus in the field. Such changes can also occur in any of the vesicular viruses. In Germany in 1927 and 1928,[1] F.M.D.[2] virus was isolated from swine which produced the disease in hogs, but could not be produced in cattle except on rare occasions and only with difficulty. Other reports deal with F.M.D. virus occurring in sheep which was only slightly infective to cattle and swine. It is a generally accepted fact that guinea pigs are always susceptible to F.M.D. virus; however, it has been demonstrated by the British F.M.D. Research Committee [3] and the Reims Research Institute,[2] that occasionally the virus is not infective for the rodent and in the experience of these researchers considerable and tedious passages were required to adapt it to this host.

Vesicular exanthema has been found to be infective on occasion for both guinea pigs and hamsters.[4] In one attempt the virus was passed serially three times in guinea pigs inoculated with a field strain of virus. On another occasion the virus was serially passed and propagated on the bellies of hamsters eight times before becoming innocuous. Further attempts to adapt V.E. virus to guinea pigs and hamsters in the laboratory have failed. Because of such irregularities in the behavior of viruses the identification of one of the three vesicular diseases is a grave responsibility when arriving at a differential diagnosis.

SEROLOGICAL TESTS

The complement fixation test as a means of detecting the presence of specific infections was attributed to the work by Bordet and Gengou who published their work in 1901. The test was primarily used for bacterial diseases in detecting the presence of specific complement fixing (C.F.) antibodies in blood sera.

The C.F. test is specific, relatively inexpensive, and is capable of giving results in a short time. Such attributes are of great importance in diagnosis of the vesicular disease complex. Unfortunately the test is a very delicate one, and when it was first applied to viral infections, it was met with some discredit. In using the C.F. test for diagnosis of diseases of bacterial origin, the antigen, in the form of bacteria, can be propagated in large amounts and by washing the extraneous material in which it is propagated, a relatively pure concentrated suspension can be obtained. Viruses, on the other hand, are locked within tissue cells, and the nonviral material in which the antigen is imbedded proves to be antagonistic or anticomplementary in the test. Some time elapsed before methods for releasing the virus in sufficient concentration and purity were developed in order to obtain a specific reaction between the virus particle and its antibody. The antigen, therefore, is the crux of the test. There is no one general procedure which can be applied to all viral infections, because of differences in quality and quantity of antigens and antibodies involved.

A fundamental property of complement is its capacity to participate in an immune reaction or enter into an antibody-antigen combination which can be demonstrated with the aid of a suspension of sensitized red blood cells. In 1940 Heidelberger [5] of Columbia University demonstrated that the complement enters the reaction on a quantitative basis and he was able to make an absolute quantitative measurement of complement in a guinea pig serum. Using this fundamental fact, he and other workers demonstrated that the test could be applied as a quantitative procedure. Furthermore, it was shown that complement activity was most sensitive at the point where 50 percent of the rbc are hemolyzed. Although the latter would be impossible to detect with the naked eye, it can be easily determined with aid of a photelometer. Using these refinements, Brooksby, Galloway, and Henderson [6] of the F.M.D. Station, Pirbright, England, proved the tests to be valuable not only in differentiating V.S. from F.M.D. but the test permitted them to differentiate between types of virus of the same disease and with certain modifications to differentiate strains of virus within the type. For example, they have shown that the Mexican F.M.D. virus was a variant of the typical Valle type A virus.[7] This was confirmed by testing the virus in a large number of cattle.

During the past year we have been studying the suitability of the C.F. reaction for the diagnosis of V.E. and feel that it can be adapted as a diagnostic tool. The results are very encouraging although we have not approached the refinements of the test as conducted by F.M. research laboratory in England.

The research program before the V.E. outbreak of June, 1952, included the testing of vesicular maetrial (virus) submitted by veterinarians of the Division of Animal Industry of the California State Department of Agriculture, from outbreaks within the State to study the epidemiology of the disease and the types of virus encountered. To date we have received 43 samples from the North Central part of California including samples from the June, 1952, outbreak. All samples tested to date conformed to our type B, V.E. virus.

As mentioned above, a successful test is dependent upon the quality of the antigen and unless the sample submitted, as the unruptured vesicular covering of the lesion, is clean, sufficient in amount, and obtained at the height of the fever, fixing qualities of the reaction are poor and interpretation difficult or impossible. In our experience a diagnosis could be rendered in only 40 per cent of the samples submitted. It is axiomatic that the virus on receipt could be inoculated into a suitable host (hog); however, this would require an expansion of laboratory and isolation space, a large number of susceptible swine, expense, and above all, a delay in rendering a diagnosis. A higher incidence of diagnoses by means of the C.F. test can be and are being made by improvements in the collection of the samples and in the test proper.

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* Presented before the Sacramento Valley Veterinary Medical Association, August 13, 1952.

[1] Trautwein, K.: *Weichardt's Ergeb. der Hyg.;* 10, 518, 1929.

[2] Waldmann, O.: *Proc. 11th Intern. Vet. Cong.;* 2, 37, 1930.

[3] Fourth Progr. Rep. of the British Foot and Mouth Disease Res. Com., London, 1931.

[4] Traum, J.: Personal Communication.

[5] Heidelberger, M.: *Science*, 92, 534, 1940; *J. Exp. Med.;* 73, 681, 1941.

[6] Brooksby, J. B., Galloway, I. A., and Henderson, W. M.: *Proc. Soc. Exp. Biol. and Med.;* 69, 70, 1948.

[7] Henderson, W. M., Galloway, J. A., and Brooksby, J. B.: *Proc. Exp. Biol. and Med.;* 69, 66, 1948.

TABLE I

SUSCEPTIBILITY OF VARIOUS SPECIES OF ANIMALS TO VIRUSES OF EXANTHEMATOUS DISEASES AS DETERMINED IN PREVIOUS INVESTIGATIONS

Species	*Method of exposure*	*Foot-and-mouth disease*	*Vesicular stomatitis*	*Vesicular exanthema*
Horses	Natural	—	+	+
	Epithelial	—	+	[3] ± ?
Cattle	Natural	+	+	—
	Epithelial	+	+	—
	Subcutaneous	+	—	---
	Intramuscular	+	—	---
	Intravenous	+	[4] ?	---
Swine	Natural	+	+	+
	Epithelial	+	+	+
	Subcutaneous	+	—	[5] +
	Intramuscular	+	—	[5] +
	Intravenous	+	+	[5] +
Goats	Natural	+	—	—
	Epithelial	+	[6] + ?	—
Guinea Pigs	Natural	—	—	—
	Epithelial	+	+	[5] ± ?

+ Susceptible.
— Nonsusceptible.
? Questionable.
[3] Traum, Crawford.
[4] Olitsky, Traum & Schoening.
[5] Traum.
[6] Wagener, K., Shahan, Frank, Mott.

(Reprinted from "The California Veterinarian," September-October, 1952.) Subsequent to the above paper by Dr. R. A. Bankowski, the following description of results obtained from further research in refinements of the complement fixation test was forwarded to the Joint Committee on Agriculture and Livestock Problems:

SCHOOL OF VETERINARY MEDICINE
Davis, California

March 17, 1953

Mr. Shelby F. Harper, *Executive Secretary*
Joint Legislative Committee on Agriculture and
Livestock Problems
Room 4058, State Capitol, Sacramento 14, California

Dear Mr. Harper: As to any new developments concerning this disease; further studies since the hearings in Los Angeles and Sacramento yielded the following which you may include in your report if you so desire.

Further studies with the complement fixation (C. F.) test has resulted in the development of a test which appears to be capable of not only identifying the virus but also in differentiating the immunological type involved in an outbreak. The test is performed with vesicular material collected from infected hogs in the field. The results of which can be obtained within 24 hours. Four immunologically distinct types of virus have been previously reported in California but only three, namely, types A, B, and F, have been isolated by this laboratory. Complement fixation tests were conducted upon 63 samples of infectious material collected from outbreaks of the disease in the north-central part of California since the early part of 1951. Of these 45 were identified as being caused by type "B" and 18 as type "A" virus. The disease due to type "F" V.E. virus has not been encountered during this testing period.

Tissues of the first outbreak tested by the C. F. test were harvested from swine which were found infected in a local garbage-feeding establishment on April 9, 1951, and the results showed that it was caused by type "B" V.E. virus. Samples from nine additional outbreaks occurring in garbage-feeding establishments in the northern part of the State prior to June 24, 1952, in all cases proved to be type "B." Type "B" was also incriminated as the causative agent in the June, 1952, outbreak as determined by the cross immunity tests in swine and by the C. F. tests performed on material harvested from lesions of pigs found infected upon entry into the State. The last reported infection with V.E. in imported hogs in this outbreak was August 12, 1952.

In the early part of September, 1952, the third type of V.E. virus was suspected involving local garbage-fed hogs and identified by cross immunity tests in swine and later by the C. F. test, as type "A." This virus was consistently identified in field samples submitted to the laboratory until V.E. was again reported as occurring in hogs shipped into California from other states. Of the 144 outbreaks recorded by the California State Bureau of Livestock Disease Control between January 9 and February 8, 1953, 29 samples obtained from infected hogs shipped into the State and tested by this procedure all without exception were found to be due to type "B" V.E. virus. An occasional sample obtained from an outbreak in local hogs proved to be caused by type "A" V.E. virus.

Hoping that this information may be of some value to you.

Sincerely,

R. A. Bankowski

APPENDIX NO. 2

HOW WE CAN ERADICATE VESICULAR EXANTHEMA[1]

Spurred by the recent flashback of vesicular exanthema of hogs into the West Coast area, from which the infection originally spread to the midwest and east, packers, veterinary experts of the Federal and State Governments, representatives of carrier and stockyards interests and others gave their earnest attention to V.E. at a committee meeting and one general session of the W.S.M.P.A.[2] convention.

The result was a strong resolution by W.S.M.P.A. calling for nationwide mobilization against the livestock disease.

Several of the veterinarians emphasized at the meeting that the only immediate hope for eradicating V.E. lies in breaking the disease cycle somewhere along the line from the infected garbage feed ranch to the packinghouse to the consumer's home and garbage can and back to the garbage feeder. There was agreement also that disinfection of all cars and trucks employed for hauling hogs after each use would help stop the spread of the infection.

Agricultural and sanitary authorities of several of the western states warned that their governments would not accept liability for indemnity on shipped-in hogs in which the disease appeared soon after receipt from an out-of-state source.

Speaking at both the committee meeting the general session, Dr. W. A. McDonald of the U.S.D.A. Bureau of Animal Industry traced the history of V.E. from its first unrecognized appearance in California garbage-fed hogs in 1932. He told of the subsequent infection of garbage feeding ranches in practically all sections of the state and the long period when the state made some effort to quarantine but devoted most attention to differential diagnosis so as to guard against a foot-mouth outbreak under the semblance of V.E.

After commenting on the summer outbreak of 1952, which was spread both east and west by hogs shipped from Cheyenne, Dr. McDonald declared:

"We believe that this disease is too serious for the people throughout the Country as a whole to live with if it is possible to eradicate it. I know it is as serious in swine as foot-and-mouth disease is in cattle. The symptoms are identical; the course of the disease is identical; the effects are identical; and, for all practical purposes, it is foot-and-mouth disease of swine, even though it is not caused by the same virus.

"There is some infection remaining throughout the widwestern states, the southern states, and some back to the east, even though, principally in the corn belt states, every infected herd was eradicated, the premises were disinfected, etc. In most of the ranches where it appeared, they have not had a recurrence. However, in others they have."

Dr. McDonald related how the disease has kicked back into the West Coast since January 1; he said that since that time California alone has had 152 inshipments of 25,700 hogs that were infected on arrival. Although the origin of some of these shipments has been traced back to St. Joseph and Kansas City, most of the farms from which the hogs came have been and are free of V.E. The authorities have concluded that the hogs stricken in the most recent outbreak were probably infected in yarding and/or transit from the Midwest to the Pacific Coast.

Turning to the problem of eradication, Dr. McDonald declared:

"*I know we have a lot of opposition to the garbage feeding proposition from different sources. However, if we are going to eradicate this disease, we might as well make up our minds right now as later, that we are going to have to destroy the virus.* Our experience here in California has thoroughly established that point.

"I believe from the eastern states on to the West Coast that we are thinking pretty much along the lines of having to cook garbage. It is going to take legislation, and it is going to take some money. Garbage cooking laws must be on a state level. The Federal Government is not empowered to come into California or Nebraska, or any place else, and tell the people there that they must cook their garbage. Any legislation of that kind must be on the state level.

"In our discussions here I think it has been pretty much agreed that this is not a one-state job, nor a federal job, but one that is going to take the whole cooperation of the State and Federal Governments, the packers, the railroad companies, the hog producers, and everyone interested in the industry and the economy of the Country. This is a matter thaf affects not only the packers and the hog man, but the general economy of the entire Country.

"We will need some legislation in Washington and the support must some from the people back home. The chief of the Bureau of Animal Industry cannot go to Congress and say, 'I want $5,000,000, or what-not, to eradicate V.E. in hogs.' He must have support from the people back home who can go to their congressmen and tell them what's needed. In financing and in getting legislation for other disease eradication programs, we have always depended on livestock organizations and other interested groups.

"Unfortunately, I understand that there is no national swine growers association in the sense that we have a cattlemen's association. For that reason, I think that a lot of the requests for legislation must come from groups like yours.

"*At the state level the bureau has urged all of the 48 states to adopt garbage cooking laws.* Bills have been introduced in quite a number of states and I believe laws have been passed in six states. Bills are pending in the legislatures of 15 additional states. Two of the states that have already adopted garbage cooking laws are Nebraska and Illinois. Missouri and Iowa have bills pending in their legislatures at the present time and they will probably adopt them.

"I think their action should be very interesting to you packers inasmuch as a very high percentage of the hogs that you do import come from those four states, especially Nebraska, Iowa and Missouri. If we get the garbage cooking laws in effect in those four states, it is going to relieve the danger of the reinfections that we are experiencing at the present time."

Prior to Dr. McDonald's talk before the entire W.S.M.P.A. membership, veterinary and agricultural authorities from several states expressed themselves forcibly on the VE problem at an open committee session. Dr. Ray Duckworth, assistant director of agriculture of California led off with a statement describing the disease as "So serious in nature as to threaten actually the existence of the swine industry in the Nation." He cited an impending shortage of hog cholera serums as one of the side effects of the situation, and estimated that nearly 100,000 hogs have been destroyed because of V.E. He said that more than $3,000,000 has been spent so far to combat the disease.

After stating that the U.S.D.A. Bureau of Animal Industry and the California Department of Agriculture believe that "raw garbage is the origin and carrier of the disease, and that it must be discontinued as a feed for swine if the eradication effort is to succeed," Dr. Duckworth challenged W.S.M.P.A. to reappraise its stand on the subject of feeding raw garbage. He noted that the League of California Cities and the California Farm Bureau Federation had also opposed garbage cooking legislation. Acknowledging that garbage cooking is only one, but a most important part of an eradication program, Dr. Duckworth declared:

"You cannot compromise with the disease nor can you compromise the principle in the eradication or control effort of the disease. It has got to be right down the middle, and unless you recognize all of those facts and do everything possible, then we will never eradicate vesicular exanthema.

"*As far as getting a vaccine in two years, there isn't the barest possibility; if the scientists had all the money in the world, they couldn't do it under ten years.* It would be impossible. If you want proof of it, ask the men who are working with vesicular exanthema."

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[1] *The National Provisioner—February 28, 1953*, reprinted through courtesy of the National Provisioner.

[2] Western States Meatpackers Association.

In reply to a comment by E. F. Forbes of W.S.M.P.A. expressing doubt as to the possibility of getting garbage cooking laws in enough states to do any good, Dr. Duckworth replied:

"If there is doubt that all the states will cook garbage, and that we (in California) are not going to do it until all the states do, we might just as well call the emergency off. If we don't go at it right, that is just about what it boils down to. Either we are going to treat it as an emergency or call the emergency off and go away and leave it. If we are satisfied to live with vesicular exanthema in California for 20 years and will continue to be satisfied with it, and the rest of the Country thinks it is satisfied with it, all right. . . .

"V.E. behaves according to its own inclinations and does not follow any rules or regulations. It broke out in June and in four or five months the authorities thought they had it pretty well under control. In January it broke out again. Now they are going to get it under control, or it will die down and it will go along and everybody will think 'fine, we have got it whipped now.' Next October it will hit us again right in the nose and it is going to get worse, and every time this thing recurs people are going to become more and more incensed. We got it under control and we issued very optimistic statements. We killed 100,000 pigs and we spent $3,000,000. But we haven't eradicated it and won't until they quit feeding raw garbage."

Many of the hogs involved in recent Pacific Coast outbreaks have come from "clean" farms in the midwest, and some have even been shipped in sealed cars in which they were fed and watered en route. This situation was explained by Dr. Boyd of the Division of Animal Industry, California Department of Agriculture, as follows.

"*They contracted V.E. by contact en route.* Practically all the cases of vesicular exanthema that we have had since last June coming from the outside have been what we veterinarians call contact type. *The hogs crossed the path, most likely, of garbage-fed hogs at some place.* These last outbreaks go back to the Kansas City area, St. Joseph and the Omaha yards, and possibly South St. Paul. Garbage-fed hogs are getting in there, probably at the stage of the disease that neither a veterinarian or anybody else can say that they have V.E. They are not showing the symptoms, but they are in a virulent stage as far as spreading the disease is concerned. These grain-fed hogs are crossing their path and by the time they get here they really have it."

Stating that the problem nationally is becoming more and more similar to what it has been in California for years—"The virus is becoming established and there are reservoirs of virus in the garbage feeding ranches"—Dr. Boyd emphasized that the disease "won't yield to inspection and quarantine." He said that while California and federal authorities no longer put their faith in such measures, retention for differential diagnosis is practiced because of the danger of aftosa.

"*We cannot become complacent,*" *he said,* "*because when we sit down and say 'that's only some more of the hog disease,' that is when foot-and-mouth disease will come in. Our two outbreaks of foot-and-mouth disease in California, and the last two outbreaks in the United States, started in garbage feeding hog ranches.* They are a dangerous source for disease that are carried through viruses that enter into garbage. We know hog cholera is one of those."

Several of the state veterinarians admitted that the problem of indemnity payments is a difficult one, particularly in connection with inshipped hogs, and questioned the states' ability to require slaughter and/or special processing of infected pork without indemnifying the owner of the hogs. They were inclined to shift this problem of indemnity on interstate hogs back to the Federal Government, even though admitting that U. S. authorities are powerless to tell whether apparently health hogs will be infected on arrival on the West Coast.

Dr. Younce, state veterinarian of Oregon, declared that "desire to eradicate" and garbage cooking are essential elements of any program. He continued:

"This is a national problem and one of interstate commerce. By no stretch of the imagination can I personally see how Oregon taxpayers would be interested in paying indemnity on animals that are diseased when they arrive in the state. That is one of the things that I think we are practically powerless to accept at the end of a five-day run. By the same token, I cannot see Nebraska taxpayers paying indemnity on hogs that are diseased when they arrive in Oregon. Therefore, it appears to me that it is a national problem and one for the federal Bureau of Animal Industry to take care of these hogs where they find them, whether it is in Salt Lake or wherever it is.

"I think it is pitiful that they are sending these infected hogs out of North Salt Lake under a federal certificate that they have V.E. I think it must be eradicated wherever it is found and the only people who can do it are the federal people. We can't do it in Oregon. They can't do it in Utah or anywhere else. These hogs come through Utah but the people of that state aren't going to pay indemnity on them when they are routed to Oregon.

"Cleaning and disinfecting the cars must be handled from a national level. Our shippers in Oregon are asking that these hogs come in clean and disinfected cars. We have it written in our regulations, but we have absolutely no way of controlling it. We can't enforce it in Oregon when the cars originate in Omaha. In other words, it must be the federal people."

"We have paid out indemnities until there is no more money to be paid out," is the way Dr. Crouse, state veterinarian, summed up the situation in Washington. He told the group that V.E. hogs had recently been slaughtered in the state without requiring processing because it was doubtful whether a slaughterer could be forced to process the pork without indemnification.

"It was a matter of leaving them sit around there," he explained. "The packer doesn't relish holding these hogs until somebody gets around to making up his mind to go into the legislature and get some money or do something about it. So the hogs are slaughtered and we have the assurance of the packer that they will not go out of the state. That is where we stand today."

Ervin Peterson, director of the Oregon Department of Agriculture, pledged cooperation of the state in the attack on V.E., but pointed out that the problem cannot be solved by the states alone. He said:

"There are quite a number of steps that seem to be indicated in connection with control of the disease. It seems to me that the states individually are dependent upon the Federal Government for certain steps in that direction. The cleaning and disinfecting and the control of trans-exchange of cars has been mentioned. Only the Federal Government is in the position to police these operations.

"As to hogs which may be infected upon arrival, to prevent the movement of those hogs through regular slaughter and the distribution of the fresh meat, they must be processed. Somebody takes a loss. I am convinced that our state, and I think no other state, is going to pay indemnity if that program is followed on hogs which are either diseased upon arrival or show disease shortly after arrival.

"We have a general indemnity bill before our legislature which will provide indemnity for all diseases where destruction of the animal or animals may be ordered by the department. I am convinced that indemnity will not be authorized for animals diseased upon arrival or those which have not been in the state at least 30 days before the disease is discovered.

"We don't know whether we can force the destruction of animals which may be diseased and for which no indemnity is available. We issued destruction orders in a few cases last summer. We got to the point of filing suit in court to compel compliance of destruction. Destruction was had before the suit was heard, so we don't know what the courts will have to say about that authority.

"This thing cannot be done by the use of police power alone. It has to be done because the people concerned and affected believe it must be done. I am sure that all of the states are perfectly willing to do anything that they can within the limitations of their own power and within their own jurisdiction to control this disease or any other disease.

"Moreover, these diseases are national in character. Where there are problems of interstate character involved, they cannot be licked by the states alone. We must have certain assistance from the Federal Government."

APPENDIX NO. 3

VESICULAR EXANTHEMA THREATENS A HOG CHOLERA SERUM CRISIS[1]

SHOULD WE TACKLE HOG CHOLERA ERADICATION NOW?

Vesicular exanthema was, on October 16th, reported present in 11 states and eradicated in 16 states. However, new foci of infection continue to appear and probably will until all garbage fed to swine is cooked or until the supplies of virus-infected pork, which have entered trade channels, are exhausted.

One of the major casualties of this epizootic has been the interrupted production of hog cholera serum and virus. The disease has appeared in some serum-producing plants, halting production, and others have sold all their hogs to avoid the heavy financial loss involved. Therefore, a possible nation-wide shortage of hog cholera anti-serum in 1953 now appears more than conjectural.

The annual output of hog cholera anti-serum, according to the Bureau of Animal Industry's 1951 estimate, was 1,254,000,000 cc. As of September 15th, this year, stocks of serum on hand and in process amounted to only 350,000,000 cc., or approximately enough to last until January 1, 1953, under normal field demand. *As of September 15th, 12 plants which normally produce 39 percent of the total serum were under quarantine for vesicular exanthema and 10 plants which produce 34 percent had voluntarily closed. The nine remaining plants, which produce 26 percent, were still operating on limited schedules but with the daily expectancy of possible closure by quarantine.*

Further complicating the situation is the fact that about 70 percent of the swine which have been hyperimmunized for serum production in the past have come from garbage-feeding establishments. A total of 250,000 head are needed each year. They are not now available because most garbage-feeding yards are quarantined or have liquidated their swine. This problem is particularly serious for producers who have been unable to hyperimmunize farm-raised swine without heavy losses as compared to garbage-fed swine. *Also under a Bureau of Animal Industry order of 1935, all licensed serum plants must have 40 percent of their total annual production on hand by May 1st of each calendar year.* This poses a most difficult situation under existing conditions.

Some persons believe that an *extraordinary* emergency, instead of just an emergency, should have been declared by the Secretary of Agriculture on August 1, 1952, so that the vesicular exanthema eradication program could have been speeded up. The Federal Government then would have had to underwrite the total expense instead of just matching the funds spent by the cooperating states, but the eradication campaign would then have been carried immediately into all the states.

It has also been proposed that, if adequate supplies of garbage-fed swine are not available, the serum producers should set up garbage-feeding establishments of their own. However, if uncooked garbage were fed, their plants might soon be closed by the appearance of vesicular exanthema or perhaps other diseases. On the other hand, if cooked garbage were fed to the hogs, would they stand cholera hyperimmunization any better than nongarbage-fed hogs do now?

Garbage-fed swine undoubtedly are frequently exposed to hog cholera virus in pork scraps, which presumably enhances their immunity to cholera. Furthermore, since most garbage-feeding establishments are unsanitary, such hogs are exposed to many other organisms which apparently greatly increases their resistance to other infections. Even hogs from comparatively sanitary garbage-feeding yards are more likely to succumb to ordinary infections, such as salmonellosis, during hyperimmunization, than are hogs from unsanitary yards.

This situation suggests the biggest question of recent years—would it therefore not be logical to now challenge hog cholera itself? *Hog cholera eradication was accomplished in Canada many years ago, after raw garbage feeding had been curbed, and the disease has not appeared there in the past five years.*

Eradication is bound to come sooner or later, so why not start it now?

Here is the situation. Hog cholera cannot occur without the specific virus being present. Since the virus does not live long in a decomposed carcass or if exposed to the sun, to drying, or to heat, the three remaining common sources are: (1) sick pigs or undecomposed carcasses; (2) commercial virulent virus; (3) refrigerated pork from hogs in the early or undetected stages of cholera.

If this be true, three steps are necessary: (1) license all garbage feeders and require that all garbage be cooked before it comes in contact with hogs; (2) withdraw from the market all nonmodified, virulent hog cholera virus; (3) quarantine and properly dispose of all cholera-infected herds, and insulate the affected area by immunizing all swine in the surrounding zone.

This is truly a big order but this could also be a big crisis. If we cannot have sufficient hog cholera serum, we cannot vaccinate the usual number of hogs with the simultaneous serum and virulent virus method. If we can't complete the job why start it with virulent virus, and risk setting up more hog cholera foci?

If it is necessary to eliminate uncooked garbage in order to eradicate vesicular exanthema, then why not get the job done and also eliminate the hog cholera virus in garbage? This would probably be the most difficult part of the problem. In certain recent instances, when new regulations forbade feeding uncooked garbage to swine, the garbage was dumped into a nearby river. This created an intolerable situation. Garbage that is not fed should be burned, buried, or otherwise properly disposed of.

The equipment for either cooking or incinerating garbage in every city will be costly but much less so, surely, than the ravages of cholera, vesicular exanthema, trichinosis, and other diseases that could and should be thus eliminated.

The quarantine, disposal, disinfection, and zone-immunization program for controlling cholera should be a more simple problem than the enforcement of the cooking of all garbage. It would, however, require a coordinated educational program to gain the cooperation of all swine producers and other interested parties. Because of the peculiarities of many swine diseases, the custom of selling marketable hogs when certain diseases are suspected is quite firmly established. Stiff penalties when owners do not cooperate may be necessary to check such practices. Prompt reporting of any cholera-like disease should be mandatory. Effective controls of sale barns and other avenues of traffic in diseased animals, including rendering plants and their trucks, should be instituted; they are long overdue. All swine passing through sale barns or public yards should, whether previously vaccinated or not, be given cholera anti-serum.

The necessity for the eradication of hog cholera has been increased, in the past few years, by the serious threat from the development of so-called variants of cholera virus. If such variants were to become widely established we would doubtless regret that eradication had not been accomplished sooner. *Those who have anticipated the eventual eradication of hog cholera have been awaiting the development of safe and effective hog cholera vaccines*—vaccines incapable of producing the disease yet able to stimulate a satisfactory immunity. *Whether we yet have fully satisfactory vaccines may be a moot question but should we wait longer?* If all nonmodified virulent virus were strictly confined and all commercially fed garbage was cooked, it is possible that cholera could be eradicated without vaccination, but such a course would be very risky as unsuspected reservoirs of cholera virus may exist. Vaccination with modified or attenuated virus methods, therefore, should be encouraged until the success of an eradication program is well established. If possible, the cooking of all garbage should precede the withdrawal of virulent virus from an area.

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[1] Editorial, *Journal of the American Veterinary Medical Association*, Vol. CXXI, December, 1952, No. 909.

It would be necessary to maintain reserve stocks of cholera antiserum to quench the outbreaks which would probably occur for a few years. However, this entire program should require only a fraction of the serum that would be necessary if simultaneous vaccination with virulent virus is continued.

If these two diseases, cholera and vesicular exanthema, can be eliminated in one program, however complicated, the latter disease may prove to have been a blessing in disguise for the swine industry. However, the present hog cholera vaccination program, the largest single item in the veterinary field, could not be shifted suddenly or terminated without confronting both the biological industry and swine practitioners with mechanical and economic problems.

To test its feasibility and make the adjustments less drastic, it probably would be advisable to put this eradication program into operation by geographical stages. This could be done by states or groups of states, preferably with a natural barrier, such as a river, separating the nonvirus area from that in which virulent virus would still be available. The state of Alabama set the pace, in September, 1951, by outlawing virulent cholera virus. No official reports on their venture are at hand but there has since been very little cholera in the state and their legislature recently extended the act without a dissenting vote.

There is always resistance to change but every action brings a reaction. For instance, if, as many believe, vaccination with cholera antiserum does check and temporarily prevent swine erysipelas, then as less cholera serum is used, more erysipelas would be expected in erysipelas-prevalent territories. Preparations, therefore, should be made for the production of more specific erysipelas biological products. (Emphasis added.)

APPENDIX NO. 4

NATIONAL FARM PUBLICATION, *THE COUNTRY GENTLEMAN*, CITES SERIOUSNESS OF HOG DISEASE PROBLEM IN FEBRUARY, 1953, ISSUE

WE HAVE TOO MANY SICK HOGS [1]

Research, When You and Other Hog Raisers Demand It, Will Clean Up Disease Problems at a Fraction of the $200,000,000 We Are Now Paying Annually in Ruinous Losses

By F. J. Keilholz

Country Gentleman wishes it could tell you to forget V.E., anthrax, cholera and all the other swine diseases and parasites that are kicking up such a fuss at a cost of more than $200,000,000 a year to you and other hog men. Truth is, these diseases and pests are going to get worse before they get better—unless we get busy and do something about them.

How that could be done is set forth here by some of the most competent authorities in the Country.

First, call the roll of the major diseases. The experts can't even tell you what causes some of the worst of them, much less how to control them.

But don't blame the experts. Look at the research record and the pitiful support we've given these workers:

TOO LITTLE FOR YEARS

One hundred eighty-five thousand six hundred forty-seven dollars to the Bureau of Animal Industry for research on swine diseases for the 1953 Fiscal Year.

Sixty-five thousand dollars to the bureau, same period, for research on parasites.

Two hundred seventy thousand dollars (total) annually at state experiment stations for research on swine diseases, parasites combined.

The grand total of $520,647 is .26 percent of the $200,000,000 losses from swine diseases and parasites—a little more than a quarter of a cent of research for each $1 of loss. It is .012 percent of the $4,291,000,000 cash receipts from hogs and home slaughter—less than one-eightieth of a cent of research for each $1 return from hogs.

It's been estimated by one national authority that probably less than 10 college or experiment-station laboratories have competent men, properly equipped, intensively studying swine disease.

EXPERTS PLEAD

A whole stack of such testimony, often in much stronger language, has been piled up from veterinary deans. The American Veterinary Medical Association, practicing veterinarians, farmers, swine-breed-association officials, packers and others.

Dr. L. M. Hutchings, chief veterinarian at Purdue, pinpointed the case by saying, "The record will show a pitifully small amount of money has been spent in swine-disease research in all of the Corn Belt stations put together during the past 40 years since the advent of anti-hog-cholera serum."

Let's just take hog cholera—and some of the other examples:

Cholera still hasn't been knocked out of the No. 1 spot. Dr. William L. Boyd, director, University of Minnesota School of Veterinary Medicine, points out that the virus of hog cholera has long been recognized, but attempts to purify it and to know about its complete characteristics have failed.

The new lapinized vaccines and their derivatives need to be refined and fitted into the eradication program through further research.

Badly needed is test-area research before eradication is undertaken on a nation-wide scale. Alabama made a start in this direction by outlawing the use of virulent virus in September '51.

Swine Erysipelas—Hog men and veterinarians are begging for a weakened or killed vaccine to eliminate the difficulties begot through vaccine from live organisms.

Needed, too, is a simple detection test that can be used on the farm to eliminate many incorrect diagnoses.

Final control awaits more complete understanding of the disease—how it occurs under natural conditions, how it spreads and how the infection suddenly appears in acute form.

OPINIONS DIFFER

This one disease alone is a hotbed of serious differences of opinion and controversy involving millions of dollars. Only extensive—and expensive—research will put the hog raiser on safe ground with erysipelas.

Atrophic Rhinitis—Its cause is a mystery. Effective control procedures are unknown and urgently needed. There is little or no hope for a cure, since there is no way to replace the damaged or destroyed bone structure. And the disease is not likely to be solved by vaccination because of its chronic nature.

Brucellosis. Transmissible Gastroenteritis (T.G.E.). The whole Enteritis complex. Leptospirosis. Gut Edema. V.E. Parasites—The roll call on these and others continues blank and discouraging in one respect or another. But such post-mortems and reminders are not needed by farmer after farmer who has been told, "We're sorry. We don't know about this disease. Go home, get rid of your herd, clean up, and wait a reasonable while before putting in replacement stock." Even then, where is he going to be sure of getting disease-free stock? And those who aren't being put out of business are having to bury or burn more dead pigs than they like to talk about.

TIME TO TALK $'s

Plainly, we've got to invest several times more than the $520,000 that is now going into research on swine diseases.

Here, then, is a starting five-year research plan—$1,200,000—based upon the judgment and ideas of competent authorities and backed up—at least in principle and purpose—by the Country's foremost swine-disease authorities.

The breakdown on the $1,200,000 includes $450,000 for three laboratory-isolation buildings, one at each of three different institutions. Staffing and maintenance would be provided out of the remaining $750,000, with $50,000 allotted annually to each of the three institutions during the five-year period. The breakdown on this is: one well-trained veterinarian $7,000; two technical assistants $4,500 each, three animal attendants $3,000 each, with the remainder going for maintenance, experimental animals, equipment and supplies.

The three laboratory-research units recommended under this plan would be located at Purdue University, the Hormel Institute of the University of Minnesota, and Iowa State College. These three already have active swine-disease programs. But all of them lack certain essential facilities.

BUNCH THE RESEARCH?

Keeping the work concentrated at these points is deemed by some to be better than scattering it around the Corn Belt or the rest of the Country. Others say, include all the principal swine-raising states, adding Missouri, Nebraska, Michigan, Ohio, Wisconsin and Illinois.

The sums listed are a bare-minimum preliminary, probably should be much higher. Some experienced scientists point out that preliminary estimates are always too low. They doubt if a laboratory-research unit can now be built for $150,000. They contend that the six-man figure for each lab is low in numbers and in salaries. And hog-disease research is expensive; there is no salvage from the animals.

One of the top authorities on swine diseases, discussing a figure, said, "Make it as big as you can dream up, with little or no fear of overemphasis. No matter how much money you spend, it likely will be relatively minor compared with the possible benefits."

All parties seem agreed that any funds or new moneys under these plans should be used to supplement or enlarge present programs or start new ones, rather than to relieve or cancel any existing support.

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[1] Source: *Country Gentleman*, February, 1953. (Reprinted through the courtesy of Curtis Publishing Co.)

There are two main sources of funds: (a) farmer-industry assessments, (b) government appropriations, state and federal. Private funds, or grants, also have been mentioned, from whatever source they could be obtained.

CHECK-OFF HAS FLAWS

Some proposals favor plan (a), with, say, 1 cent per hog marketed being collected from farmers through their marketing agencies. This plan would concentrate control, desirably so, in the hands of swine producers and the states, but there are three or more strong negatives against it: (1) It has been tried many times before; competent authorities can't cite a single successful example. One reason: Hogs are raised in too small bunches over too large a territory. (2) It might give rise to thinking in some quarters that the livestock industry should finance all its own research. If the hog raisers do it, why not others? And if the producers were the only ones to benefit, this might be a strong argument. (3) Transition from public-supported to private-supported research would delay the program and perhaps do irreparable harm.

Under (b) government appropriations would require action by swine producers themselves and their organizations through Congress and the state legislatures. Neither the USDA, its Bureau of Animal Industry, nor any other bureau of the department can originate and campaign for oppropriations. But advocates of federal appropriations for swine-disease research say that what other groups (cattle, sheep, poultry) have done, hog men can do. Broiler interests, for example, within the past year got almost immediate results on a $250,000 request for new research on one disease alone—airsac.

There's a legitimate, orderly way to proceed in such cases, and it requires no "pull," no secret know-how or no 5 percenters. Yet a key Washington official says to the best of his knowledge no hog man or representative of the industry has ever come before a Senate appropriations committee.

All that swine producers have to do is get together and speak up in the right places. So, the next and subsequent steps are:

FIVE STEPS URGENT

1. *Get organized.* Swine producers are more poorly organized and have less voice than any other group of meat producers. Never have they had an effective, long-lasting organization to present their problems to experiment stations, legislatures, Congress or the consumer. American Pork Producers, with other organizations before and after, have performed with credit on some short-run jobs, but sooner or later all of these groups have waned and disappeared.

These are some of the things that could be done:

Formation of county or district swine producers' associations covering each state and holding periodic meetings. This is urged as a great step forward by Dr. Maynard L. Spear, Iowa State College extension veterinarian. One fired-up breed secretary says the right man with $10,000 could organize the corn-hog country in six months or less.

UNITE ALL BREED MEN

Uniting the many swine-breed associations into a single organization with the association secretaries as departmental men. This has been advocated by Dr. A. H. Quin, vice president and head of the professional-service division of Jensen-Salsbery Laboratories, Inc., Kansas City, Missouri.

Establishment of a National Swine Research Institute also was suggested by Doctor Quin in a program outlined to *Country Gentleman* almost a year ago. This institute would do "balanced team" research under a master director, financed by the swine industry and related groups.

Establishment of a "master" swine-industry committee, along the lines of the National Committee for the Eradication of Hog Cholera (U. S. Livestock Sanitary Association). This, again, is one of Doctor Quin's ideas. The committee would be financed by contributions from the industry sufficient to maintain a full-time staff. It would serve as a central clearing house for problems, approved and diaspproved practices, and so on.

Happily, some of these ideas have now reached the action stage in the proposed National Swine Health Research Foundation, sparked by R. H. Waltz, president of the Indiana Swine Producers Association, Hagerstown, Indiana. The Foundation idea was discussed and approved in a meeting of industry representatives in Chicago at the time of the recent International. A second meeting is scheduled for the 1953 International. In the meantime, four "incorporators" are to work with Chairman Waltz. A temporary board of directors is to be set up, representing commercial swine producers, purebred breeders, veterinarians and experiment stations. And organization plans and documents are to be worked over throughout the industry prior to the 1953 meeting. Concurrently state groups are expected to tighten up their own organizations and to press for more research support from their legislatures.

2. *Revise present laws, regulations and policies.* Most laws governing the movement of livestock, except for emergencies such as the V.E. outbreak, are geared to team-and-wagon transportation, predating the pickup truck and the community sales barn. Also there often is confusion or lack of co-ordination between state and federal laws. "Mail order" replacement of animals in breeding herds, from any part of the Country, will be a breeder and spreader of diseases until interstate shipping is modernized and safeguarded. And present-day policy and philosophy too often stop at "live with disease" rather than eradicate or minimize it.

3. *Better use of the know-how and the forces we now have.* One of the top men in the industry charges that the most prevalent of all swine diseases is lethargy on the part of stockmen. As proof, countless farmers have failed to adopt the McClean County system of roundworm control, although its merit has been proved for 25 or 30 years.

"What hog raisers want," said one of the Country's top veterinarians, "is something that can be put in a syringe, injected into a pig at one day of age and thenceforth take him through to market." There is not and never will be any such magic substitute for personal skill, management, and good husbandry, for no disease, animal or human, has ever been controlled with a vaccine or an antibiotic—alone.

And packers, along with producers, have been too prone to accept losses from diseases as long as those losses can be largely passed on to the consumer.

Extension Service programs and other educational means need to be re-examined and recharged in the light of present-day swine-disease problems.

Close contacts and co-operation must be worked out between swine farmers and local veterinarians, especially on preventive practices, and beyond that, to take in state and federal health officials, commercial concerns, trucking officials and the research folks.

4. *Find out what is needed.* One authority has advocated a Division of Animal Vital Statistics in the Bureau of Agricultural Economics or elsewhere in the USDA. No such information is now available on a nation-wide basis. Others have recommended that this fact-finding, or survey, cover housing, management, nutrition and related factors bearing on diseases and losses. It's certain we can't control and eradicate diseases until we have authoritative information. Nor can producers, packers, distributors and the public be brought wholeheartedly behind a control program until they are informed on the tax levied by diseases and paid for by all who eat pork.

5. *Training and education.* One of our basic needs for many years has been the training of a more adequate number of veterinarians to assist stockmen in the diagnosis, prevention and control of swine diseases.

We need better and more comprehensive courses on swine diseases in our agricultural colleges and veterinary schools. One authority long concerned about the problem points out that there is not even an authoritative textbook on swine diseases. Compiling and publishing one would help.

Any time hog raisers want to put over a stepped-up program in swine-disease research, there's a whole powerhouse of talent waiting to help them.

For example, in addition to those already quoted, those who contributed to *County Gentleman's* survey of this problem and its solution included a score or more of the top names in veterinary science and animal industry in this Country.

It's up to you, these authorities say, to demand research that will put the swine industry on a sound, healthy basis and keep it there. That's the one greatest need of the industry today, and high time, in the words of Yorkshire Secretary E. Robert Shannon, "to raise unshirted hell until something is done."

APPENDIX NO. 5

AMERICAN PUBLIC HEALTH ASSOCIATION HEARS ABOUT COOKING GARBAGE, 1942

HEALTH PROBLEMS CONCERNED IN THE DISPOSAL OF GARBAGE BY FEEDING IT TO SWINE *

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The disposal of garbage has been one of the most difficult of the many sanitary problems faced by municipal administrative officials. The incineration of this material requires a considerable capital investment, reduction has not proved to be a profitable undertaking in most municipalities, and many are not in a position to employ the sanitary fill to advantage. Consequently, a large percentage of American cities have found it necessary to utilize the hog feeding method of disposal.

During the first World War, considerable pressure was brought to bear to increase the feeding of garbage to hogs as a food conservation measure. Already similar efforts are being made in connection with the present emergency. While such efforts are entirely in order and will probably be continued of necessity, it is believed that the public health feature of such a program should not be ignored. For the past several years, the writer has had occasion to study various aspects of this problem and has been called upon from time to time to supply information regarding it to sanitary engineers and other health officials. It now seems worth while to summarize for members of the public health profession and other interested individuals some of the accumulated data.

RELATION OF GARBAGE FEEDING TO HUMAN HEALTH

Unfortunately the practice of feeding uncooked garbage to swine helps to perpetuate one of the most important parasitic diseases of man in the United States. This disease, trichinosis, is more prevalent in this country than anywhere else in the world, and its occurrence is associated to a considerable extent with the above mentioned practice.

During the past five years, studies have been conducted in the National Institute of Health to determine the distribution of the trichina parasite in different population groups. In these studies, diaphragms have been obtained from persons coming to necropsy in 168 hospitals in 37 states, the District of Columbia, and Puerto Rico. To date, material from 5,379 individuals has been examined, of which 15.9 percent has been positive for the parasite. Many of the positive cases have represented infections with relatively small numbers of larvae and it is probable that some of the individuals involved never suffered any serious effects from their infection. However, a certain percentage had infections of a degree which would probably cause illness, even though such illness might not have been recognized as trichinosis at the time of its occurrence.

On an average, about 400 clinical cases of trichinosis are reported yearly to the U. S. Public Health Service. However, about one-third of the states do not require the reporting of the disease and in many others it would appear that the reporting is very casual. Each year there come to the attention of the writer in various ways scores of cases which are not reported to state boards of health. There is good evidence also that many cases of the disease are not properly diagnosed. It is apparent, therefore, that the number of cases of trichinosis on record is in no way representative of the total number which probably occur.

SOURCES OF TRICHINA INFECTION

The trichina parasite, *Trichinella spiralis*, is a small roundworm living as an adult in the small intestine, and sometimes in the large intestine, and as a larva or intermediate form in the voluntary muscles of the same individual. It is found in many carnivorous and omnivorous animals. Most human cases of trichinosis are contracted through the consumption of raw or undercooked pork.

Muscle tissue containing the infective larvae of the parasite is not only infectious for man but is capable also of transmitting infection to swine. As collected, household, hotel, and restaurant garbage usually contains scraps of pork. If this pork carries the live worms, its consumption by swine will result in infection with trichinae. If the scraps happen to have come from a piece of pork which was thoroughly cooked, there is little danger of the transmission of the parasite. However, not all pork scraps recoverable from garbage have been cooked and those which have been cooked may not have had treatment sufficient to destroy the larvae. In a large eastern city, examination of nearly 600 composite 100-gram samples of pork scraps from household garbage revealed trichina infection in 1.5 percent of the samples. Even though one-third of the positive samples had been cooked, they contained trichinae which were still alive.

The incidence of the trichina parasite in swine is correlated closely with the type of food on which the animals are maintained and with methods of husbandry. Very extensive surveys have been carried out by the U. S. Bureau of Animal Industry to ascertain the extent of infection in swine. Results of these surveys have been reported yearly first by Hall and then by Schwartz in the annual reports of the chief of that bureau. A summation of the data in these reports indicates that there have been examined through June 30, 1941, approximately 12,000 hogs fed on raw garbage, of which 6.2 percent were infected, approximately 22,000 so-called grain fed hogs, of which 0.8 percent were infected, and approximately 2,800 hogs fed on cooked garbage, of which 0.4 percent were infected. In studies in California [1] in which the hogs examined were traced back to the farm and the type of feed ascertained, infection was found in 6.4 percent of 1,701 hogs fed on raw garbage, in 0.6 percent of 1,109 hogs fed on grain plus kitchen scraps, and in 0.4 percent of 2,436 hogs fed exclusively on grain. These data, and many others which are available, indicate beyond doubt that swine maintained on raw garbage are more frequently and more heavily infected with trichinae than are those given most other kinds of feed. They also indicate that the rat plays only a minor rôle in the transmission of trichinosis to swine for the reason that rats are usually just as prevalent around plants feeding cooked garbage as around those feeding raw garbage. If the rat represented the principal source of transmission of the parasite, one would expect almost as high an incidence in hogs fed on cooked as in those maintained on raw garbage.

EXTENT OF PRACTICE OF GARBAGE FEEDING

It is difficult to secure reliable information concerning the number of persons in the United States feeding garbage to hogs, the number of swine maintained on such feed, and the total tonnage of garbage which is disposed of in this manner. In a survey conducted early in 1940 by the Bureau of Agricultural Economics of the U. S. Department of Agriculture through county agricultural agents,[2] replies which were received from the majority of the states indicated that the number of feeders annually feeding 100 head or more totaled 2,786. A total of 1,022,000 garbage fed hogs was reported to have been marketed annually by these feeders. The report stated that, if allowance is made for missing data, the total number of garbage fed hogs in the country runs to more than 1,250,000 per year. This would seem to be a very conservative figure since it gives no consideration to hogs produced by the very large number of persons who market less than 100 garbage fed hogs per year.

Early in 1939, the writer [3] conducted a survey of municipal garbage disposal methods through questionnaires forwarded to health officers in all cities of 10,000 population and over. Replies were received from 764, or 79.3 percent, of 964 such cities. These replies indicated that a total of 296 cities disposed of municipal garbage entirely by feeding it to swine, while an additional 107 cities disposed of part of the garbage in this manner. Thus a total of 403, or 52.7 percent, of the 764 cities replying to the questionnaire disposed of municipally collected garbage in whole or in part by feeding to swine. In only 24 of the 403 cities was the garbage cooked before its consumption by swine. While figures are not available for the country as a whole, it is reasonable to assume that the practice is equally or more extensively prevalent among smaller cities and towns.

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* Presented before the Engineering Section of the American Public Health Association at the seventy-first annual meeting in St. Louis, Mo., October 27, 1942. Reprinted from the "American Journal of Public Health," March, 1943.

Available data indicate that the trichinosis morbidity rate is correlated closely with the practice of feeding uncooked garbage to swine. For instance, the Pacific Coast States, which rank second in the number of the cities disposing of garbage by feeding it to swine, have the highest morbidity rate of any section. The New England States, with the next highest morbidity rate, lead all other geographical areas in the number of cities using the hog feeding method of disposal.

VALUE OF GARBAGE AS A HOG FEED

The food value of garbage varies considerably according to the source of the material. Garbage from hotels and restaurants, as well as hospitals and other institutions, has a much greater food value than has material from private homes. The food value of garbage has decreased considerably during the past 10 to 15 years. Formerly a ton of garbage would produce approximately 50 to 60 lbs. of pork but more recently this value has been decreased to 30 to 40 lbs. For instance, the fattening value for hogs of Los Angeles city garbage has decreased from 68 lbs. per ton in 1932 to 31 lbs. per ton in 1939. The beginning of the depression period in 1930 marked a considerable fall in the food value of garbage, a decrease which was probably due to economies effected by the housewife. However, the value has continuously declined and it is probable that other factors, such as wider use of mechanical refrigeration in the home and the increased consumption of canned food have had considerable influence. Whatever the factors may be, the continued decline in the food value of garbage has resulted in decreasing considerably the margin of profit for the hog feeder and has rendered the business of garbage feeding even more hazardous financially.

In general, garbage-fed hogs are not popular with the meat packers because garbage produces a soft, oily pork. The dressed carcass yield of garbage-fed hogs is less, and cured pork and lard from such hogs are inferior in quality to that obtained from grain-fed hogs. A considerable number of packers have indicated that condemnations are more frequent in the case of garbage-fed hogs. These facts and that of buyer discrimination make it necessary to sell this type of pork at a reduced price. Consequently, most meat packers buy garbage-fed hogs only at a discount; this discount averages between 50 cents and $1 per 100 pounds.

COST OF GARBAGE IN RELATION TO RETURNS

The decreasing food value of garbage, packer discrimination, and price discounts are of direct concern to the garbage feeder. Unless he is able to secure quality garbage gratis or at a low figure, he is operating under distinct handicaps which at best allow only a slight margin of profit. Many hog feeders secure garbage gratis while others pay varying prices for both household and hotel and restaurant garbage. In a few places the city pays the hog feeder for the collection and disposal of the garbage. Practices in regard to charging for this refuse material vary considerably and depend somewhat on the quality or food value of the material. In some places a fixed price is asked while in other cities the cost is in relation to the market price of corn. For instance, in St. Louis, where the city sells a considerable quantity of municipally collected garbage to hog feeders, the price has ranged from 60 cents to $1.20 per ton, depending on the price of corn. In Portland, Ore., the competition among garbage feeders for good quality garbage has resulted in prices as high as $6 per ton. Obviously, the higher the price paid for the garbage, the fewer opportunities for profit there are for the feeder.

DISEASES ENCOUNTERED IN GARBAGE-FED HOGS

Diseases other than trichinosis are transmitted through garbage, and the frequent occurrence of these diseases contributes to the financial hazards involved in the feeding of raw garbage to hogs. Among these diseases are hog cholera, swine erysipelas, foot and mouth disease, tuberculosis, vesicular stomatitis, and vesicular exanthema. Hog cholera is a particular scourge of garbage-fed swine and many outbreaks are due to the transmission of the virus in scraps of pork in the garbage. In fact, Canada requires the cooking of garbage before its consumption by swine as a means of controlling this disease. Vesicular exanthema first appeared in garbage-fed hogs in California in 1932; since that time it has occurred intermittently, each time in increasing scope, until it has become a formidable problem because of extensive monetary losses resulting from the high mortality in young pigs.

COOKING OF GARBAGE AS A MEANS OF DISEASE PREVENTION

The heat treatment of garbage in a manner sufficient to destroy viruses, bacteria, or worm larvae contained in parts thereof would seem to offer a solution to the control of many of the diseases transmitted by this material. Consequently, the cooking of garbage offers distinct advantages to the feeder.

The cooking of garbage before its consumption by swine would not completely solve the trichinosis problem because other factors enter into the transmission of the disease. However, because garbage-fed hogs are on the average more frequently infected and more heavily infected with trichinae than are those maintained on most other kinds of food, the method would contribute to a considerable extent to the control of human trichinosis.

The frequent warning of the public to cook pork well has apparently been unsuccessful in controlling this disease, since there is no evidence to indicate a reduction in the number of clinical cases over the period in which intermittent warnings have been given. The present situation warrants the application of control procedures other than a dependence on the individual to protect himself against the disease, since public health practices are far beyond the antiquated stage wherein personal responsibility is the sole guide to disease prevention.

As previously stated, Canada requires the cooking of garbage as a measure of protection against hog cholera. In England cooking regulations are in force as a means of preventing foot-and-mouth disease. There have been few outbreaks of human trichinosis in Canada and, until the past year, England has been particularly free of the disease. According to one authority, the occurrence of a relatively large number of cases in England recently has been associated with a wartime relaxation in the enforcement of the regulations. In the United States, Oregon and Kentucky have regulations pertaining to the cooking of garbage before its consumption by swine. In Oregon, the regulations are administered by the State Department of Agriculture, and in Kentucky by the State Department of Health. Legislation to this end has recently been enacted in New York State. A rather exhaustive inquiry into the situation in that state was made by the New York State Trichinosis Commission.[4-5] Following the work of the commission, several pieces of legislation having a bearing on trichinosis control were enacted. These included a measure to regulate slaughterhouses, a provision for the processing for the destruction of trichinae of pork products customarily eaten without cooking by the consumer, and a bill requiring that any contract made or permit issued by a municipal corporation or any public or private institution for the disposal of garbage shall require proper cooking of the material before it is used as a feed for swine.

Contacts with state officials and a personal survey of the situation in the two first mentioned states have led the writer to believe that little opposition has been encountered in the enforcement of the regulations and that for the most part garbage feeders have voluntarily complied with the requirements and are not dissatisfied with them. In interviews with feeders in these states, they have raised none of the objections commonly offered by individuals who have never tried the feeding of cooked garbage.

OBJECTIONS TO COOKING GARBAGE FOR HOGS

The objections to feeding cooked garbage generally come under five categories, viz.: lack of palatability, presence of injurious acids and alkalies, toxicity of citrus rinds, absence of free choice selection of food, and failure of the hogs to make adequate gains. While we have no way of measuring the gustatory preferences of a hog other than its acceptance or rejection of food, the fact that hogs do consume cooked garbage with apparent relish is in itself an answer to the argument that the cooked material lacks palatability. There is also no evidence that the cooking of garbage releases dangerous acids and alkalies not already in available form. Cooking may, however, distribute such substances throughout the material. Unless in strong concentration, the dilution of such substances by the customary addition of a large amount of water to garbage is such as to render them usually innocuous.

A frequently expressed objection to the cooking of garbage has dealt with the supposition that the cooking of citrus fruit rinds releases a poison dangerous to hogs. However, experimental evidence[8] indicates that, although they have very little food value, the cooking of the rinds results in no toxic effects.

More or less free choice selection of food material is offered when hogs are maintained on raw garbage. When the material is cooked, the animal is of course not privileged to separate out types of food not to its liking. This is a valid objection, although the ability of the animal to follow its predilections may not necessarily be correlated directly with the nutritive value of the food selected. In fact, it has been the experience of many feeders that the use of cooked garbage is more economical, since a greater portion of the material is consumed and there is much less waste.

Some feeders have reported in the past that hogs fail to make adequate gains on cooked garbage. Unfortunately most opinions of this sort are based on limited observation and are not supported by evidence from carefully planned and executed experiments in which adequate controls have been employed. However, it is probably true that the prolonged heating of garbage at high temperatures does break down or destroy some of the nutritive elements in the material. Little is known concerning the changes brought about in garbage heated to various temperatures and under various conditions, and more experimental work is needed on this problem. In spite of the lack of knowledge on the subject, there may be offered as evidence the opinion of many of those who have fed cooked garbage to swine and who believe that advantages are to be derived from cooking the material. A majority of the feeders interviewed by the writer stated that hogs maintained on cooked garbage averaged 1 to 1½ pounds gain per day, which is certainly a good rate of gain. Some of these individuals fed grain supplements in addition to garbage but some fed only cooked garbage.

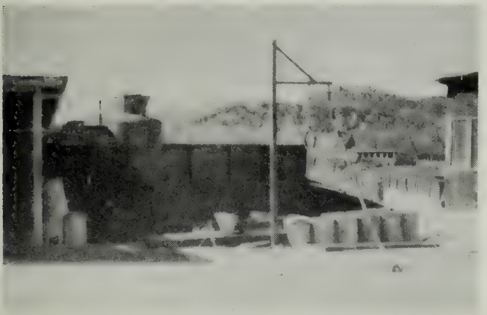

FIG. 1. Second-hand rendering tank used for the steam cooking of garbage at the U. S. Marine Hospital, Fort Stanton, N. M.

METHODS OF PROCESSING GARBAGE

Garbage can be processed in various ways as a means of preventing disease transmission. The most practical treatment consists in boiling the material after the addition of water. This is probably the simplest and most inexpensive method of heat treatment available. In small operations, it can be accomplished by the use of equipment usually at hand or easily and inexpensively devised (Figure 1). In large-scale feeding operations, equipment for boiling has not been difficult to provide and usually costs less than that needed for heat treatment by other methods. The suggested sanitation code of the U. S. Public Health Service specifies the holding of garbage to a boiling point for at least 30 minutes as a means of preventing the transmission of trichinosis. It would appear also that the transmission of many swine diseases could be obviated by this amount of heat treatment. The relative effect of the nutritive value of the material boiled for this period of time compared to that cooked for longer periods is not known. However, the experience of some hog feeders would seem to indicate that garbage boiled for long periods has less feeding value.

Various other methods have been devised for the treatment of garbage so that it may be used as a food for swine without danger of the transmission of disease. These methods involve the use of special processes which require more or less elaborate machinery and which would probably be suitable only for large-scale feeding operations. However, the principles involved are interesting ones and may be capable of development to a point of practical and less expensive application.

Courtesy American Process Feed Co., San Diego

FIG. 2. Apparatus employed for the steam-vacuum dehydration of garbage and its conversion into a feed for livestock

One of these processes consists of a revolving cylinder provided between the outer surface and the inner container with a steel jacket through which superheated air is blown by forced draft. The amount of heat applied to the garbage is controlled through escape of vapor, through the constant rotation and agitation of the material, and through the regulation of its depth over areas of varying temperature. It is possible by this process to decrease materially the moisture content of the garbage. The estimated cost of dehydrating garbage by this process varies between $2.75 and $3.25 per ton, depending on the scale of operation. This figure includes no allowance for labor, insurance, or interest on the money invested.

Another process which has been recommended for the dehydration of garbage and its conversion into a feed for livestock consists of a cylindrical dryer with a steam jacket surrounding the internal chamber containing the material (Figure 2). Paddles within the chamber provide a constant agitation of the material during the heating process. Chemical treatment is carried out to promote hydrolysis and steam is then applied until a pressure of 100 pounds has been obtained. This pressure is maintained for 10 minutes, after which dehydration is accomplished by the introduction of varying amounts of vacuum in the inner chamber and a gradual lowering of the steam pressure in the outer chamber. The process is so arranged that suitable proportions of grain can be introduced through a special vacuum valve arrangement to be mixed with the garbage and provide a balanced ration. It has been estimated that the cost of treating a ton of garbage by this method amounts to approximately $1.65. Another quite similar process, without provision for chemical treatment, has also been devised.

Of the several methods of processing garbage, experiments carried out at the California Agricultural Experiment Station under the direction of Prof. E. H. Hughes indicated that the simple heat treatment of garbage by the introduction of steam to an open container was most satisfactory from the standpoint of the food value of the product. Hogs maintained on garbage cooked in this way made better gains than did those fed the dehydrated material. Furthermore, in the feeding trials there was very little difference between the average daily gain of hogs fed on the open steam-cooked garbage and raw garbage collected from the same source.

The above-mentioned experiments, which are as yet unpublished, confirm the impression of the writer gathered as a result of visits to numerous garbage-feeding plants and of interviews with individuals who have been feeding cooked garbage to hogs, in some cases over a long period of years. On a recent tour of such plants in a state in which there were promulgated two years ago regulations requiring the cooking of garbage before its consumption by swine, all feeders interviewed stated that they would not return to the feeding of uncooked garbage even though the regulations were revoked. One individual who cooks and feeds 42,000 pounds of garbage per day without the addition of any supplements advised the writer that the superiority of cooked garbage over raw garbage is so great that he considers the authorities did him a great favor in requiring him to cook the product. He stated that the cost of cooking would be more than compensated for by the extra feeding value of the cooked garbage, even though the grease salvaged from the cooked material more than covered the cost of operation. Losses had also been reduced materially since the product had been cooked. Another prominent livestock producer, who had threatened court action rather than cook garbage for hogs, later thanked the authorities for enforcing regulations and stated that he would never revert to the feeding of the raw material.

COST OF EQUIPMENT FOR PROCESSING GARBAGE

The expense of installing equipment for the heat treatment of garbage varies considerably in accordance with the method of cooking, the number of hogs to be fed, the simplicity or elaborateness of the equipment, the type of fuel to be employed, and other factors. For instance, some feeders use oil-burning equipment or automatic stokers which represent greater initial capital outlays but which probably pay for themselves in the long run in the saving of wages. The outlay for equipment used in the special processes mentioned above would run into thousands of dollars and would be warranted only for large-scale operations. For open kettle steam cooking or direct open-flame cooking, elaborate or costly equipment is not necessary and most feeders improvise equipment from discarded or second-hand materials. In order to give some practical idea as to the cost of cooking equipment, the following is summarized from information obtained from representative feeders at the time of inspection of their operations.

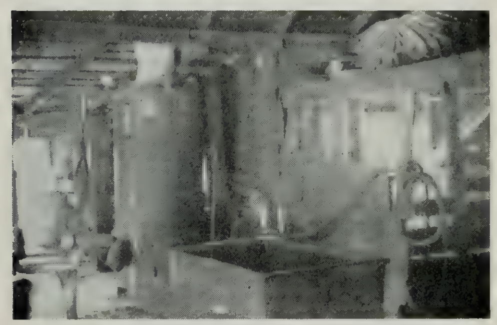

FIG. 3. Boiler and one of the cooking tanks employed for the steam cooking of garbage for 300 hogs

F. P. On an average feeds 100 hogs; supplements garbage with grain. Collects and cooks approximately 3,750 pounds of garbage per day. A 15 h.p. boiler and automatic stoker cost $500 four years ago. A 500-gallon steel cooking tank cost $20 second-hand. This is a closed tank and the garbage is cooked under steam pressure. This individual has been feeding cooked garbage for 31 years.

C. E. Maintains about 300 hogs on an average. Collects and cooks about 4,000 pounds of garbage per day. Uses a 20 h.p. boiler (Figure 3) which cost $400 new, and two steel cooking tanks which cost $50 each new. A single steam line is run across the bottom of each tank. Each cooking tank holds 340 gallons. Supplements cooked garbage with grain.

H. B. Maintains on an average about 200 hogs. Collects and cooks 4,500 pounds of garbage per day. Pays $1,000 per year for garbage. Uses a 10 h.p. tubular boiler which cost $300, and an 800-gallon steel cooking tank which cost $69.50. Steam lines are run across bottom of tank. Supplements cooked garbage with distillery waste.

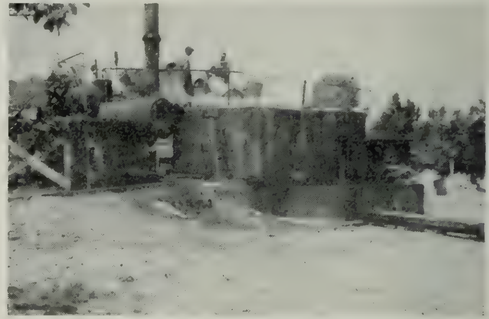

FIG. 4. Apparatus used for the steam cooking of garbage for 2,000 hogs

B. B. Feeds on an average of 1,500 hogs. Cooked garbage is supplemented with an average of 1.5 pounds of grain per head per day. Collects and cooks approximately 11,000 pounds of garbage per day. The equipment consists of a 20 h.p. boiler, two steel cooking vats, one of 2,800-gallon and the other of 1,260-gallon capacity, and a grease vat holding 360 gallons. This equipment, together with necessary feed troughs and chutes for delivering garbage cost $1,575 installed.

B. and N. Feed an average of 2,000 hogs on cooked garbage only. Collect and cook about 21 tons of garbage per day. Equipment (Figure 4) consists of a 42 h.p. high pressure boiler, two steel cooking vats, one of 2,880-gallon capacity and the other of 2,231-gallon capacity, a cooling vat holding 1,260 gallons, a grease vat holding 619 gallons, and a storage and cooling vat holding 2,430 gallons. This equipment, including necessary chutes and feeding troughs, cost $3,278 installed.

C. J. Maintains about 12 hogs on an average. Cooks in two 50-gallon (Figure 5) oil drums, each set in a brick furnace. The oil drums and brick for the furnace were salvaged from the city dump and represent no cash outlay. Fuel consists of packing boxes and crates salvaged from the dump.

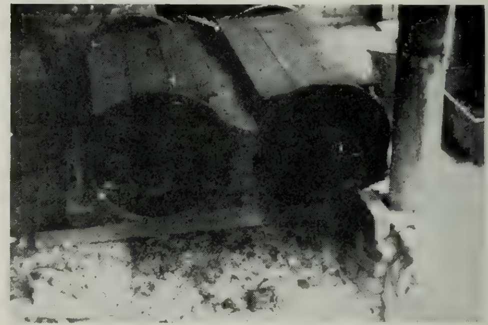

FIG. 5. Two 50-gallon oil drums converted for cooking of garbage over an open flame

D. B. Feeds on an average of 500 hogs; supplements cooked garbage with grain approximately two pounds per day per hog. Cooks and feeds 4,000 pounds of garbage per day. Uses two 1,000-

gallon steel tanks which cost $80 each. Steam lines are run across bottom of tanks. Boiler cost $600.

G. B. Maintains about 800 hogs on an average. Cooking equipment consists of two 2,550-gallon Douglas fir cooking vats which cost $70 each. A marine boiler and piping cost $500. The steam pipes are placed over the bottom and around the sides of the tanks. Supplements cooked garbage with grain at rate of 1.5 pounds per hog per day.

Most of these observations were made and recorded prior to our active participation in the war. The situation in regard to the availability of equipment for the treatment of garbage has changed materially and it is not possible to predict whether materials will be obtainable for this purpose. No doubt the advantages of the practice from a public health standpoint will have to be weighed against the necessity for conserving metals for war purposes. The matter has been placed tentatively before the War Production Board and sooner or later a policy will be formulated. However, no change in the situation has taken place in other war countries, and regulations covering the cooking of garbage are still in force in Canada and England.

COST OF OPERATION

Accurate figures on the cost of cooking garbage are very difficult to obtain for the reason that most feeders do not maintain bookkeeping systems and can only estimate costs. Effort has been made by the writer to ascertain from all feeders interviewed some idea as to the cost of operating cooking equipment. The estimates furnished vary considerably, depending on the method of cooking, the section of the country, local wage scales, cost of fuel, manner of handling, and the extent to which inedible material is removed by hand sorting either before or after cooking. Furthermore, in some of the places visited, some of the labor was furnished by the family of the feeder, in which event it was not taken into consideration in estimating costs.

Figures obtained by the writer indicate that the cost of cooking garbage varies from $1.45 to $3.50 per ton on the West Coast and from $0.40 to $1.95 per ton in the South. These figures represent only the cost of labor and fuel and do not include such items as interest on the investment, depreciation, insurance, etc. In general, the cost decreases somewhat in proportion to the number of hogs fed. Information furnished the writer by Dr. Benjamin Schwartz of the U. S. Bureau of Animal Industry indicates that the cost of cooking in Canada with installations sufficient to cook garbage for 150 hogs is around $0.90 per ton.

SANITATION OF GARBAGE FEEDING PLANTS

The general sanitation of garbage feeding plants has some bearing on the transmission of trichinosis as well as of endemic typhus and plague. These plants provide an abundance of food material for rats, and rats are usually prevalent around such plants unless proper construction is employed and suitable measures are taken to limit their spread. While the rat is of only minor importance in the transmission of trichinosis to swine, hogs do occasionally eat rats and may thus acquire trichinosis in this way.

At best the feeding of garbage to hogs creates something of a nuisance and sanitary conditions may become exceedingly bad unless constant effort is made to maintain the premises in good condition. It is best to have hog feeding plants situated in an area reasonably far removed from residential sections and preferably on land which has sufficient fall and enough natural drainage to prevent the accumulation of standing water and mud holes. Sandy soil is more suitable than heavy clay soil.

Feeding platforms should be constructed of concrete with sufficient fall to allow proper drainage into a gutter of a depth sufficient to hold the run-off of waste and wash water. The writer believes that such feeding platforms should be raised above the ground, but in any event each platform should have a rat guard of galvanized iron sheeting or concrete extending 18 inches into the subsoil. Edges of feeding platforms should extend upward at least six inches in order to avoid spilling garbage onto the surrounding ground area. Feeding and watering troughs should be likewise constructed of concrete with a surrounding width of concrete platform with gutters to prevent spilling. Bins for bones, tin cans, bottles and other objects salvaged from the garbage should be constructed at least two feet above ground and properly rat proofed. Bones removed from cooked garbage provide less of a nuisance than those in raw garbage. After the meat has been cooked from the bones, they bleach rapidly after being binned and usually cause no odor or fly problem.

Feeding platforms and troughs should be cleaned and washed down at least once a day and all inedible materials removed in order to maintain cleanliness and minimize fly breeding. Large scale operations should only be permitted to be carried on where the owner has sufficient land that feed lots can be changed frequently so that old lots can be turned over and if possible seeded to cover crops.

The garbage feeding plant is a focus for the potential spread of endemic typhus, plague, and trichinosis, and as such warrants supervision by local health departments. A few health jurisdictions have regulations governing the operation of such plants. In Los Angeles County, California, the County Live Stock Department maintains close supervision over garbage feeding plants. From the standpoint of promoting rat control and general sanitation, construction plans issued by this department are the best the writer has seen.

SUMMARY

It is pointed out that the widely prevailing practice of disposing of garbage by feeding it to swine provides an important avenue of infection for human trichinosis and a potential hazard for the spread of endemic typhus and plague. The cooking of garbage before its consumption by swine constitutes an important step in the control of human trichinosis. Objections on the part of hog feeders to this practice are discussed and evidence is offered to indicate that many feeders who now cook garbage find it feasible and economical to do so. Information is given on methods of processing garbage and types of equipment now in use in various places. Data obtained from hog feeders on cost and operation of equipment is furnished for the benefit of sanitary engineers and others who may have occasion to deal with this problem.

NOTE: Information contained in this paper has been obtained from a wide variety of sources and the writer is indebted to those persons who have cooperated in furnishing it. Particularly is he grateful for the assistance accorded by the following individuals and organizations: Dr. A. T. McCormack, Kentucky State Health Commissioner; Mrs. Sarah Vance Dugan, Director, Bureau of Foods, Drugs, and Hotels, Kentucky State Department of Health; Dr. C. H. Blandford, Hardin County Health Officer, Elizabethtown, Ky.; M. M. Warren, Jefferson County Board of Health, Louisville, Ky.; R. E. Boyle, Manager, Fontana Farms, Fontana, Calif.; Professor E. H. Hughes, University of California, College of Agriculture, Davis, Calif.; W. E. Upshaw and E. H. Jefferson, Oregon State Department of Agriculture, Portland, Ore.; the Institute of American Meat Packers, Chicago, Ill.; and J. M. Princell and Lawrence Oliver, American Process Feed Co., San Diego, Calif.

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APPENDIX NO. 6

AMPLIFICATION OF AMERICAN FARM BUREAU REMARKS REGARDING POSSIBLE SPREAD OF VESICULAR EXANTHEMA THROUGH SERUMS

CALIFORNIA FARM BUREAU FEDERATION

Berkeley 4, California
December 16, 1952

Senator George J. Hatfield, *Chairman*
Joint Legislative Committee on Agriculture and
Livestock Problems
Room 3090, State Capitol
Sacramento, California

Dear Senator Hatfield: As a result of the Joint Agriculture and Livestock Committee's hearing in Los Angeles on December 9, during Farm Bureau's presentation a question was asked by Assemblyman Lowrey as to a portion of the American Farm Bureau Federation's resolution on vesicular exanthema, with reference to an investigation of the reported spread of vesicular exanthema from certain serum laboratories, to determine if laxity exists in the supervision of the manufacture of serum and to develop recommendations to insure the production of safe and dependable serums.

For inclusion in the records, I should like to submit to you excerpts from a letter received December 12 from Herman C. Aaberg, Director of the Livestock Department of the American Farm Bureau Federation.

"In accordance with your request concerning the possibility of vesicular exanthema being spread through hog cholera virus and serum laboratories, I wish to state that the recommendation of the Livestock Advisory Committee of the A. F. B. F., as approved by the Board of Directors, did not make this as a statement of fact, but merely raised the question of the possibility and suggested that the matter be thoroughly investigated.

"We have taken the matter up with the Bureau of Animal Industry and a number of hog cholera serum and virus producers, and have been assured that vesicular exanthema was not spread through the use of virus and serum. It might be possible to disseminate the disease through hog cholera virus, but in the nature of operating a serum plant it appears that the last outbreak was not disseminated by this method.

"As soon as the condition was recognized at serum plants, the bureau immediately placed under bureau lock all products until they could be properly tested. This applied to all products regardless of when they had been made, as long as they were under bureau control. As soon as the premises were properly cleaned and disinfected each serial of serum or virus was tested on susceptible pigs by injecting 15 cc of the product intravenously and scarifying the snouts of the test pigs and applying the product to be tested. The bureau did not find any indication that vesicular exanthema was present in either the serum or the virus, therefore, it appears that the pasteurization of serum probably kills the virus of vesicular exanthema the same as other vesicular viruses, such as vesicular stomatitis and foot-and-mouth disease. This is accomplished by heating serum to 58-59 degrees C. for 30 minutes.

"In reviewing the outbreaks which have occurred in serum plants, it has always occurred in immune hogs which have been received from garbage feeding establishments. Because it has appeared soon after shipments of hogs have been received, it is believed that the prime source of infection must have been in the garbage feeding establishments prior to shipment to the serum producers. Of course, once it has been established in a serum plant it sometimes spreads very rapidly to other animals. There has never been any indication to date, according to the B. A. I., that pigs used for virus production purposes have been infected, except after the introduction of immune hogs to the premises. This may have been brought about by infection in chutes, alleys, etc.

"In the usual serum plant operations susceptible pigs for virus production must be obtained from sources where cholera has not existed. They must also be segregated and handled quickly in order that they do not come down with cholera before they can be utilized for virus. They usually are quartered in separate pens reserved for virus production purposes and at no time are in close proximity to hyperimmune hogs which are used for serum production.

"In the routine testing of hog cholera virus each serial that is produced must be tested on three pigs immune to cholera by injecting 15 cc of the product intravenously. These animals are observed for seven days and must remain normal. If vesicular exanthema was present in the product being tested, it would appear that there would be an elevation in temperature and vesicular formation within the test period according to the B. A. I. We have been advised by the B. A. I. that they do not believe that virus or serum capable of transmitting vesicular exanthema to animals has appeared on the market to this time and, because each serial of virus is tested as stated above, and that the serum is all pasteurized, the bureau believes that it is very unlikely that an outbreak of vesicular exanthema due to contagious serum or virus will occur.

"When the B. A. I. received the report on June 15th from the inspector in charge of virus serum control at Lincoln, Nebraska, concerning a vesicular condition in hogs at a commercial laboratory near Grand Island, Nebraska, the recent shipments of hogs to the laboratory were traced and it was found that hogs had been shipped on June 6th from a hog farm at Cheyenne, Wyoming to the laboratory and investigation made by the bureau on June 17th of the hog farm revealed a vesicular condition. It was learned that the owner of the farm had noticed lame hogs at the time of the June 6th shipment to the laboratory and had held back a number of the obviously lame animals. It was learned also that the hog farm had been feeding, for the past 60 days, garbage from transcontinental railroad trains. Shipments of hogs to the farm were traced back with no evidence of infection at the source. While the investigation of the condition at the laboratory was in progress, infection was found in hogs on the laboratory farm located near Grand Island. We understand also that California officials received vesicular infected hogs from the Omaha stockyards, therefore, the possibility of the infection spreading from the laboratory at Grand Island or the hog farm at Cheyenne was checked by the bureau and it was found that on June 18th a shipment of 73 hogs was made from the laboratory farms to the Omaha stockyards. Part of this shipment (18) was vaccinated and sold to a dealer at Fremont, Nebraska, who, in turn added to this number of hogs and shipped them from Fremont to Kirkland, Washington. The hogs undoubtedly mixed with others on the dealer's farm because another shipment from this farm not containing any of the laboratory hogs was sent to Union City, New Jersey and infection was later found there. In the normal movement of hogs the disease was quickly spread to transportation marketing and slaughtering centers in 16 states. The most recent report is that the disease has appeared in 31 states, has been eradicated in 19 and is being controlled in 12 states. It was, at that time, that the state and federal officials made a concerted effort to trace all sources and check further spread by holding affected hogs in quarantine until proper disposal could be made. This was followed by the declaration of a state of emergency which made possible the payment of indemnities in states in a position and willing to cooperate in a control and eradication indemnity program."

Yours sincerely,

O. W. FILLERUP
Legislative Representative

NOTE: In addition, the Joint Committee on Agriculture and Livestock Problems cites the following testimony excerpted from the transcript of its hearing in Sacramento on December 17, 1952:

"**Senator Hatfield:** I would like to ask this question. Do you know or does anyone from the farm bureau know of any instances in which that disease has come in California from the use of hog cholera virus or serum or any other serum?

"**Mr. Fillerup:** I personally do not know, sir.

"**Senator Hatfield:** Do you know of any that have been suggested that may have come from that origin?

"**Mr. Fillerup:** I do not know."

"**Dr. Duckworth:** Only in confirmation of what Mr. Fillerup has just said concerning the possibility of spread of vesicular exanthema during the outbreak in the Middle West and the East. Dr. Simms, before the Assembly of the United States livestock sanitary officials—

"**Senator Hatfield:** Dr. Simms is the Chief of the Bureau of Animal Industry of the United States Department of Agriculture?

"**Dr. Duckworth:** Yes, Dr. B. T. Simms. He stated there was no possibility of the disease escaping via either virus or serum. Serum, of course, is pasteurized and it would be impossible for serum to carry the virus, but he stated that there is no evidence to cause even suspicion that the disease might have been spread through the media of virus or serum.

"**Senator Hatfield:** That statement was made where?

"**Dr. Duckworth:** At the meeting of the Assembly of the United States Livestock Sanitary Association at Louisville, Kentucky, on the twenty-eighth of October of 1952."

In questioning Dr. R. A. Bankowski of the University of California at Davis on this matter, the following is excerpted from the December 17, 1952, hearing transcript:

"**Senator Hatfield:** You would feel that there is no need for concern?

"**Dr. Bankowski:** That is right.

"**Senator Hatfield:** That the disease (V.E.) might be spread by that method (serum)—you have no concern about that?

"**Dr. Bankowski:** That is right, sir."

APPENDIX NO. 7

LETTER FROM THE DEPARTMENT OF AGRICULTURE QUALIFYING APPROVAL OF C. F. B. F. RESOLUTION ADOPTED OCTOBER 10, 1952

STATE OF CALIFORNIA
DEPARTMENT OF AGRICULTURE

November 6, 1952

MR. RAY GRIFFIN
California Farm Bureau Federation
2223 Fulton Street, Berkeley, California

DEAR MR. GRIFFIN: Looking over the resolution adopted at Berkeley by the Temporary Committee of the Swine Section, C. F. B. F., on October 10th, and the instructions to county swine sections embodied in the text of the letter, certain points come to mind which I believe should be called to the attention of the county swine section chairmen, as well as the Livestock Department of the California Farm Bureau Federation.

It should be pointed out that, with the exception of the chairman, Virgil Groves, the temporary committee is made up of garbage feeders. The viewpoint of such a group on the particular subject could hardly be one of objective impartiality.

With the exception of the second recommendation the effect, if not the intent, of the resolution is diversionary. The first recommendation urging the "ultimate" control and eradication of vesicular exanthema is vague and indefinite as to time or method of control or eradication.

The third recommendation asking for the "introduction of a measure in the State Legislature designed to provide funds for making available information on the proper treatment of garbage in order to render it innocuous to livestock" has the appearance of being intended to provide a means of continuing feeding raw garbage for an indefinite period. If the recommendation was not so intended it will, nevertheless, make possible the continuation of feeding raw garbage for at least two years more, or until such time as a presently nonexistent committee or board can set up a plan for treating garbage and conducting feeding tests.

The recommendation is not clear on what is meant by "innocuous." If it was intended to mean the destruction of viruses, bacteria and parasites, there obviously is no need to spend money or devote time on such experiments. The thermal death point of disease producing viruses, bacteria and parasites is well established. Definitely known degrees of heat applied for definitely known periods of time are all that is necessary to render any substance or medium innocuous, as far as disease is concerned.

It is known that temperatures of 122 degrees to 131 degrees F. are sufficient under *certain controlled conditions* to kill trichinae, and that the virus of vesicular exanthema is killed at a temperature of 145 degrees F. held for 30 minutes. However studies by the National Institutes of Health, Public Health Service, have shown that for *practical purposes*, disinfection at a temperature of 212 degrees F. in a fluid consistency for 30 minutes was necessary to obtain a temperature of 145 degrees F. in pieces of pork up to three inches thick. ("Equipment for the Heat-Treatment of Garbage to be Used for Hog Feed," issued jointly by the U. S. Department of Agriculture and the Federal Security Agency, Public Health Service, October, 1952.)

As one of the advisors to the committee I wish to make clear that I cannot lend unqualified approval to the resolution as written.

Very sincerely yours,

(Signed) R. E. DUCKWORTH
Assistant Director

APPENDIX NO. 8

PRELIMINARY DRAFT OF THE C. F. B. F. LEGISLATIVE PROPOSAL—NOT ACTED UPON

MEMO

Date: September 2, 1952

To: Ray Griffin, Secretary Swine Section, S. F. B. F.

From: Harold Neeland, Legal Counsel, C. F. B. F.

Subject: Proposed Legislation to Combat Vesicular Exanthema in Swine.

In accordance with your request, we have drafted a proposed new Section 216 of the Agricultural Code regulating the feeding of garbage to swine.

In addition we suggest an amendment of existing Section 205 concerning quarantine so as to include vesicular exanthema. This amendment would appear to cover the points in your work sheet relative to quarantine regulations, slaughter and indemnity of infected herds and inspection of yards, railroad cars, trucks, etc.

The detailed requirements should be embodied in the rules and regulations adopted by the Director of Agriculture. We have merely listed certain categories into which the different necessary regulations appear to fall.

Accordingly, you will find attached four copies of the proposed new Section 216, four copies of the proposed amended Section 205 and four copies of the outline of the rules and regulations of director. We are also returning your work sheet and the supporting material you provided in this regard. We understand of course that at this point the proposed legislation is mainly to be used as a starting point and that it may very well be modified or that an entirely different approach may be taken.

H. N.

PROPOSED LEGISLATION TO COMBAT VESICULAR EXANTHEMA IN SWINE

AGRICULTURAL CODE (Amendment of section.)

Section 205. Quarantine against foot-and-mouth disease, etc. Whenever any of the diseases of animals known as foot-and-mouth disease, *vesicular exanthema*, rinderpest, surra, or contagious pleuro-pneumonia or any other infectious diseases of animals considered by the director to be detrimental to the welfare of the animal industry are discovered in the State, the director shall:

(a) Fix and proclaim the boundaries of a quarantine district wherein such disease exists or has existed.

(b) Establish, proclaim and maintain a quarantine of such district and of all animals therein.

(c) Forbid, prevent or restrict the movement of all animals from or into such districts or from place to place therein, during the existence of such quarantine.

RULES AND REGULATIONS OF DIRECTOR

1. Administrative organization for enforcement. Department of Agriculture. County veterinarians.

2. Licensing of processing operation. City, county or state license.

3. Inspection. Costs paid by license fees or taxes (bond required for volume).

4. Sanitation. Premises and Processing. Heating methods (steam, vats, etc.), temperature (140 degrees-180 degrees F.), length of heating period (5-30 minutes).

AGRICULTURAL CODE (Add new section.)

Section 216. No person shall feed to swine or permit swine to have access to or be fed any garbage obtained elsewhere than on the premises where fed—composed of or containing any meat scraps, offal, animal refuse or other matter, except fruit or vegetable refuse, edible by swine unless said garbage is first processed in a manner which would destroy or prevent the existence of a causative agent for any infectious or contagious disease or diseases inimical to livestock which is liable to exist in raw garbage as defined therein. The director shall enforce this section and shall promulgate and adopt rules and regulations for carrying out the provisions herein.

APPENDIX NO. 9

SUMMARY OF HOG RANCH OPERATIONS AT STATE INSTITUTIONS IN CALIFORNIA

December 1, 1952

Honorable James S. Dean, Director
Department of Finance
State Capitol, Sacramento, California

Subject: Hog Ranch Operations, State Institutions

The Joint Legislative Committee on Agriculture and Livestock Problems has before it a consideration of controls dealing with Vesicular Exanthema (a swine disease), and the cooking of garbage to prevent the spread of this disease.

In the event it becomes necessary to cook garbage at state institutions prior to feeding of swine, it will be necessary to provide suitable equipment.

In order to indicate the scope of hog ranch operations at state institutions, a questionnaire was sent to institutions asking for information on the following items:

(1) The usual number of hogs fed garbage (daily basis).

(2) The estimate number of gallons of garbage delivered at the hog ranch daily (garbage from dining rooms and kitchens containing meat products).

The summary which follows does not include hog ranch operations at state colleges. Hog ranches at the two state colleges do not feed garbage.

The hog ranch operations at Fricot, Paso Robles, and Los Guilucos are not included. Each of these schools usually feed garbage to 20 to 30 hogs daily.

Estimates (indicated by *) in some instances in the following table are high due to volume of water. In the event it becomes necessary to cook, a change in collection methods should reduce water content materially.

SUMMARY OF HOG RANCH OPERATIONS (STATE INSTITUTIONS)

State institutions	Total number swine June 30, 1952	Gross value hog ranch operations 1951-52 F. Y.	Usual number hogs fed garbage (daily basis)	Estimated number of gallons of garbage (daily basis)*
Dept. of Corrections				
C.I.M. (Chino)	1,343	$67,355	400	350
Folsom	676	18,417 (½ yr.)	130	120
San Quentin	1,264	29,298 (½ yr.)	250	160
Soledad	424	24,293	180	75
Dept. of Mental Hygiene				
Agnews	610	25,306	526	1,517
Camarillo	306	27,810	350	1,500
Mendocino	624	36,792	625	450
Norwalk	508	34,358	350	350
Patton	727	52,158	615	1,000
Sonoma	413	36,110	145	600
Stockton	912	29,055	700	750
Youth Authority				
Preston	285	12,602	35	80
Totals	8,092	$393,554	4,306	6,952

SUMMARY

(1) Garbage cooking at the hog ranch has been observed at the Santa Rita Prison Farm (Alameda County). An open type cooking vat is used.

(2) The Preston School of Industry cooks garbage at the hog ranch in an open type vat.

(3) The Norwalk State Hospital plans to use available equipment and cook garbage at the hog ranch.

(4) In the event it becomes necessary to cook garbage, equipment should not be expensive. In several instances slaughterhouse boilers can be used providing there is no regulation preventing such use.

R. B. Easson
Agricultural Adviser

APPENDIX NO. 10

CITIES OUTLINING THEIR INTEREST IN LEGISLATION PROHIBITING FEEDING OF RAW GARBAGE

Following are copies of the reports to the Joint Legislative Committee on Agriculture and Livestock problems from the fifty-two California cities which have outlined their interest in legislation prohibiting the feeding of raw garbage to swine.

The cities are listed in alphabetical order, they are:

Alhambra
Anaheim
Berkeley
Beverly Hills
Blythe
Brawley
Burbank
Carlsbad
Compton
Corona
Coronado
El Monte
El Segundo
Escondido
Fillmore
Fresno
Fullerton
Gardena
Glendale
Holtville
Laguna Beach
La Verne
Long Beach
Los Angeles
Manhattan Beach
Monrovia
National City
Needles
Oceanside
Ojai
Ontario
Oxnard
Palm Springs
Pasadena
Pomona
Rialto
Riverside
Sacramento
San Buenaventura
San Diego
San Fernando
San Jose
San Luis Obispo
Santa Monica
Santa Paula
Signal Hill
South Pasadena
Stockton
Torrance
Upland
Vernon
Whittier

CITY OF ALHAMBRA

November 28, 1952

State Legislative Interim Committee on
Agriculture and Livestock Problems

Gentlemen: It has been brought to our attention that proposed legislation prohibiting the feeding of raw garbage to swine will come before the committee for hearing on December 9, 1952.

In regard to this matter, I wish to submit for your consideration at this hearing, information concerning the problem locally and also the effects such legislation would have upon the City of Alhambra.

Our estimated total amount of garbage collected annually is 6,000 tons and is conveyed to a hog ranch where it is fed to hogs in its raw stage. The proposed legislation, if put in effect prior to January 1, 1954, would terminate the existing contract with the city for collection and disposal of this garbage.

The city is now paying the contractor, at this particular time, $2,189.53 per month for the city's garbage collection and disposal service. We have no way of definitely knowing how much credit the city receives for the value of the garbage as hog feed as an offset against the contractor's cost of collection. Prior to the present contract the city collected the garbage and sold it under contract for $3.60 per ton.

The City of Alhambra maintains and operates a municipal incinerator in which we could burn our garbage. The incinerator construction was financed by a $240,000 bond issue approved by the electorate of Alhambra and was put into operation approximately 20 months after the date of the bond election. The operation and maintenance cost plus the fixed charge cost for incinerating one ton of garbage was $3.68, according to our operating data compiled for the Fiscal Year 1951-1952.

The garbage value being $3.60 per ton as stated above and the garbage incineration cost being $3.68 per ton, it means an economic loss to the city of $7.28 per ton of garbage collected if the city were required to incinerate their garbage.

The burning of 6,000 tons of garbage annually at $7.28 per ton amounts to $43,680. This amount represents the estimated increase in annual cost for garbage disposal to the City of Alhambra which would be incurred because of the proposed legislation.

We feel that the City of Alhambra will be penalized approximately $40,000 annually, or a tax increase of $0.06 per $100 assessed valuation, so naturally if we can continue our present method of garbage disposal without jeopardy we wish to do so.

Very truly yours,

W. M. Jarrett
City Engineer and Street Superintendent

CITY OF ALHAMBRA

January 16, 1953

State Legislature Interim Committee on
Agriculture and Livestock Problems
Sacramento, California

Dear Sirs: Attached is certified copy of Resolution No. 15084 adopted by the Alhambra City Commission.

Very truly yours,

(Mrs.) Madeline E. Woodbury
City Clerk

RESOLUTION NO. 15084

Whereas, The University of California is making an investigation and study of the problem of the segregation of raw meat scraps and bones from garbage in an effort to prevent trichinosis in human beings; and

Whereas, This matter has come before the California State Legislative Committee on Agriculture and Livestock Problems on Vesicular Exanthema of Swine; and

Whereas, A study of the problem is being made by the Committee for the Control and Eradication of Vesicular Exanthema in California; and

Whereas, This commission believed that it should go on record as recommending that the State Legislature shall appropriate money for further study of garbage segregation and the processing of garbage fed to swine and pertinent problems in order to form a basis for a decision based on factual data; now, therefore, be it

Resolved by the Commission of the City of Alhambra, That said commission does hereby go on record as recommending that the California State Legislature shall appropriate money for study by the University of California of the whole problem of garbage segregation and the processing of garbage fed to swine in order to form a basis for a decision based on factual data.

Signed and approved this Sixteenth day of December, 1952.

T. D'Arcy Quinn
President of the Commission

Attest:
Madeline E. Woodbury
City Clerk

I Hereby Certify that the above and foregoing resolution was duly passed and adopted by the Commission of the City of Alhambra at its regular meeting held on the sixteenth day of December, 1952, by the following vote, to wit:

Ayes: Commissioners Stentz, Cosand, Blake, Burke, Quinn.
Noes: None.
Absent: None.

(SEAL)

I hereby certify that the foregoing document is a full, true, and correct copy of Resolution No. 15084 on file in the office of the City Clerk of the City of Alhambra.

Madeline E. Woodbury
City Clerk

CITY OF ANAHEIM

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

SIR: It has come to our attention that your committee will hold a public hearing on Tuesday, December 9, 1952, on proposed legislation to prohibit the feeding of raw garbage to hogs or to require the cooking of garbage before it is fed to livestock.

To the City of Anaheim this will incur quite a hardship as it will necessitate a complete change of our current operation.

At the present time we are selling our garbage to a hog farm, which picks it up at a central point within the city and for which the city receives $1 per ton.

Our load is now approximately 1,200 tons per year and if the hog farms are forced to cook the garbage it is very likely that they will cease to operate, in which event it will be necessary for the City of Anaheim to acquire property where a cut and cover method might be used and which also would increase our costs by adding a longer haul.

In view of the above, it is respectfully recommended that your committee take no hasty action at this time and that before any legislation is proposed, a complete study and research be undertaken for a practical method of meeting this problem.

Yours respectfully,

CITY OF ANAHEIM
By G. E. Holyoke, City Engineer

CITY OF BERKELEY

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
State Capitol Building, Sacramento, California

DEAR SENATOR HATFIELD: The League of California Cities informs us that your committee has requested from certain northern California cities, information to complete the record on the proposed legislation to prohibit the feeding of raw garbage to hogs.

Attached is a copy of a report to me by our director of services which covers the situation as far as the City of Berkeley is concerned. Insofar as possible, we have attempted to make this report cover the points which we believe you and your committee are interested in.

If there is other information which you desire, we would be pleased to furnish it to you.

Sincerely,

JOHN D. PHILLIPS, City Manager

January 8, 1953

To: John D. Phillips, City Manager
From: Owen Dyer, Director of Services, Garbage Division
Subject: Feeding Raw Garbage to Hogs

The City of Berkeley has a five-year contract with Mr. Louis Santucci, 873 S. G St., Livermore, California, for the collection of raw garbage known as swill, and greens from hotels, restaurants, boarding houses and markets that are located within the city limits of Berkeley. He disposes of this material by feeding it to hogs at his hog ranch located at Livermore, California.

This contract was started on July 1, 1950, and will expire on June 30, 1955. Mr. Santucci is required by the terms of this contract to furnish trucks and labor necessary to perform this work which is a daily operation seven days per week. He uses two trucks and two men to make the collections. For the privilege of this contract, he is required to pay to the City of Berkeley the following scale as quoted for the sale of hogs on the San Francisco livestock market.

When hogs are selling at:	*Price per ton for swill and greens*
Under $5.00 cwt.	$2.41
Between 5.00 and 6.00 cwt.	2.41
Between 6.00 and 7.50 cwt.	2.50
Between 7.50 and 10.00 cwt.	2.60
Between 10.00 and 12.50 cwt.	2.75
Between 12.50 and 15.00 cwt.	3.05
Between 15.00 and 17.50 cwt.	4.50
Between 17.50 and 20.00 cwt.	5.50
Over 20.00 cwt.	6.50

Following is the tonnage and revenue report of the contract for the past two fiscal years:

	Fiscal Year 1950-51	*Fiscal Year 1951-52*
Total number tons collected	2,026	1,827
Total revenue received by city	$11,979.05	$11,365.64
Average number of tons per day	5.55	5.06
Average price per ton paid by contractor	$5.91	$6.15

There are 159 places from which this material is collected and they are scattered throughout Berkeley. The collection schedule is made up of the following:

	Total number of calls per week	*Average number of cans of swill emptied per week*	*Average number of crates of greens emptied per week*
53 pick ups requiring 7 calls per week	371	868	1,322
82 pick ups requiring 3 calls per week	246	363	141
14 pick ups requiring 2 calls per week	28	24	14
1 pick up requiring 1 call per week	1	2	0

SUMMARY

Total number of pick ups made each week	646
Number of swill cans emptied per week	1,257
Number of crates of greens emptied per week	1,477

If the feeding of raw swill and greens is prohibited by state legislation during the next two and one-half years which is the life of our present contract, and if Mr. Louis Stantucci should decide to terminate his contract, it would then be our responsibility to collect and dispose of this material in the same manner we now take care of our other waste refuse.

To perform this work, it would require one truck with a crew of two men working six days a week. The monthly cost to operate this truck including labor, truck rental, and disposal costs would be as follows:

Truck rental	$230.00
Labor	925.00
Disposal costs	100.00
Total per month	$1,255.00

There is no charge by the city to these 159 places for the collection of swill and greens. We do charge for material the city trucks collect that is not usable for hog feed. Our records show a total monthly charge of $1,521 to these 159 places for city collection service or an average of $9.57 per month per place.

If the city has to collect the swill and greens, the total charge for this service will be approximately $1,300 per month based on our present rate charges. This represents an average of $8.10 per month per place in addition to what they are now paying for city refuse collection service.

Summarizing this problem, we find the following:

1. The city would stand to lose approximately $11,000 net profit per year by the termination of the hog contract.
2. One hundred fifty-nine places now getting free swill and greens collections would have to pay an average of $8.10 per month in addition to their present garbage collection charges.
3. The additional amount of six tons per day of swill and greens which represents about 6 percent of our daily tonnage, would have to be disposed of at the City Dump. However, this does not create a difficult problem.
4. This type of material could be used to good advantage for composting purposes if composting of waste refuse can be proven an economical method for disposing of municipal refuse.

(Signed) OWEN DYER, Director of Services

CITY OF BEVERLY HILLS

December 2, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
c/o League of California Cities
440 Statler Center, Los Angeles 17, California

DEAR SIR: In accordance with a request from the League of California Cities, I am forwarding this communication for the purpose of acquainting you and the Legislative Interim Committee on Agriculture and Livestock Problems, with the effect proposed legislation to prohibit the feeding of raw garbage to hogs, would have on the City of Beverly Hills.

The following information is arranged in the order suggested by the league so that it might quickly be compared with similar data provided in the same order by other Southern California communities:

a. Estimated total amount of garbage collected annually—5,000 tons.
b. The garbage is collected by city personnel and sold under terms of a three-year contract to a hog rancher who feeds it raw to his hogs.
c. If feeding of raw garbage is prohibited, we would be forced to incinerate it.
d. Our current revenue from our contract for garbage disposal is approximately $1,750, based on the current price of hogs.
e. The legislation as proposed would terminate our contract since a clause in the document provides for termination upon 60 days notice following the enactment of any legislation which would prohibit the feeding of raw garbage.
f. At the estimated unit cost of $2 per ton, it would cost the city $10,000 per year to dispose of its garbage by incineration (we have no land available for sanitary fill operations and have only a limited site outside of the city limits for the disposal of ashes from our incinerator.
g. The estimated annual increase in our cost for garbage disposal would be the total of the cost of incineration and the loss of revenue from present garbage sales, a total of approximately $11,750.
h. In discussing this problem with our present contractor, we have determined that he is definitely not in a position to cook the garbage and would be forced to stop feeding it if the proposed legislation were to be enacted.

We recognize the serious nature of the problem under consideration, but hope that your committee will recognize also the serious problem which we, as city officials, must solve in disposing of our city's garbage in a sanitary and economical manner. Haste in this matter would be regrettable, indeed, and it is our suggestion that an additional effort be made to study other methods of controlling the vesicular exanthema than by disrupting the present disposal practices of this entire area.

Mr. Herbert Scott, Maintenance Superintendent, will be present at the hearing to be held by your committee on Tuesday, December 9th, and will be equipped to discuss in greater detail any of these points on which you may have a question.

Yours very truly,

JOHN B. WENTZ
Administrative Officer

CITY OF BLYTHE

December 2, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR SIR: The City of Blythe wishes to go on record with your committee as opposing legislation to prohibit the feeding of raw garbage to hogs and to earnestly request that before any legislative action is taken a thorough study and research be undertaken for practical methods to meet the problem.

Passing such legislation at the present time would place an impossible financial burden upon the City of Blythe and other cities of the same size. The estimated amount of garbage collected in our city is 55,000 gallons per year. This is collected by an independent contractor who feeds it to hogs. The proposed legislation would result in the termination of our contract for garbage collection and would necessitate the City of Blythe not only collecting the garbage but disposing of it by a costly cut and fill method.

The estimated additional cost to the City of Blythe for such collection and disposal of its garbage would be a capital outlay of $25,000 and an additional yearly expense of $18,000 over and above the present cost of collection.

The above figures might seem small until you compare them with the amount of money raised by real estate taxes in a city the size of Blythe. Taxes of real estate for the last fiscal year amounted to $36,000 so that you can see the additional expense sets up a burden impossible for a city the size of Blythe to assume.

Very truly yours,

A. G. ALEXANDER, Mayor

CITY OF BRAWLEY

December 3, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR SIR: The City of Brawley hereby wishes to protest any immediate action on the prohibition of feeding raw garbage to hogs on the basis that it would work an undue hardship on the city by overburdening its present facilities and would cause an additional capital outlay expenditure on equipment that would take several years to provide for.

The city feels, also, that the problem warrants further research by the proponents of such a measure especially in regards to regulatory measures in the way of license, permits and inspections of hog feeders using raw garbage. It is the feeling that properly enforced regulatory measures of disposal and collection might well accomplish the desired results of the proponents of this measure.

The City of Brawley for the last year and a half has taken care of the trash and garbage collection and disposal by one contract without any cost segregation. This contractor is feeding the raw garbage to hogs and considers it at least a $100 to $125 per month receipt toward reducing the monthly cost of the collection and disposal service to the city. From several sources, it appears the small hog feeders with current prices could not afford to cook garbage economically and the small cities with a population of 15,000 or less would be forced to take over garbage collection and disposal. At the present time, it is estimated that the average collection of garbage is five cubic yards per day per eight months and six cubic yards for four months, or a total of approximately 2,000 cubic yards per year.

For the city to take over the collection and disposal of garbage the following would be entailed:

1. Purchase of one cubic yard dump truck capital outlay expense -------------		$3,000
2. Amortization of dump truck (5 years)	$50 per mo.	
3. Maintenance of dump truck @ $0.05 per mile and estimated @ 50 miles per day --------------------------	75 per mo.	
4. One additional full time employee estimated @ -----------------------	300 per mo.	
5. One equipment operator for cut and fill, $2.00 per hour for one hour a day	60 per mo.	
6. Patrol grader $3.00 per hour for one hour a day------------------------	90 per mo.	
7. Total estimated fixed charges per month	$575	
8. Total estimated fixed charges per year ----------------------------		6,900
9. Total first year expenditures including original capital outlay-------------		$9,900

The City of Brawley hopes that this information will be of value to you in this particular problem. We will be glad to supply any additional information concerning our city at your request.

Very truly yours,

HOWARD H. HOUGH
Assistant City Engineer

CITY OF BURBANK

December 5, 1952

The Honorable George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
c/o League of California Cities
440 Statler Center, Los Angeles 17, California

Dear Sir: I wish to submit the following as Burbank's problem in regard to the proposed legislation prohibiting the feeding of raw garbage to swine:

Paragraph 2.

a. The estimated total garbage collected annually by the City of Burbank is approximately 7,000 tons.

b. Our present method of disposal is that of feeding this raw garbage to hogs.

c. Our city would have no alternate method at this time of disposal if the feeding of raw garbage to hogs is prohibited. (Installing large garbage grinders and disposing of the garbage in our sanitary sewer system would create a very complicated problem at our Hyperion sewage disposal plant. Until such measures could be taken at the plant to care for this additional garbage, that solution would be out.)

d. If garbage grinding could be an alternate, it would still take funds and time to rebuild the disposal plant to handle this excess material. This time element and funds would be estimated to take not less than five years.

e. Our current revenue from the sale of garbage is based on the selling price of hogs and is on a fluctuating scale. At the present selling price of hogs the City of Burbank will receive more than $11,000 annually for the sale of garbage.

f. Any legislation prohibiting the feeding of raw garbage to hogs would terminate our present contract.

g. The City of Burbank has no area which could be conveniently used as "cut and cover," or as a "sanitary fill" for garbage.

h. If the feeding of raw garbage to swine is prohibited, instead of receiving a revenue of more than $11,000 per year it might cost the city several times that amount, which could further complicate our budgetary problems.

i. Our present contract for the selling and hauling of garbage from the City of Burbank extends through November 30, 1956. If this contract were cancelled, the City of Burbank would lose some $45,000 for the next four years. A newly constructed ramp costing $10,000 for the transferring of garbage from our truck to the contractor's might not fit in with any future plan, and might cost several thousands of dollars to remove so that this property could be used for other purposes.

Under our present economic system it would be most disastrous for our city if any such legislation as this proposed prohibition of feeding raw garbage to swine were passed.

Very truly yours,

Clayton W. Paige
City Engineer and
Street Superintendent

CITY OF CARLSBAD

December 1, 1952

The Joint Committee on Agriculture and
Livestock Problems
California State Legislature
Sacramento, California

Gentlemen: This letter is an attempt to explain how the City of Carlsbad feels in regard to the proposed legislation which would stop the feeding of raw garbage to swine.

At this time, the City Council of Carlsbad is against the proposed act for several reasons:

(1) The city is newly incorporated (16 July, 1952), and has no funds that could be diverted for any form of garbage disposal.

(2) The garbage collection is made by two independent collectors who are paid by individual citizens on a monthly basis. Any stoppage of this collection would pose at once a health problem which this city is illy equipped to combat.

(3) Any other means of processing garbage would necessitate a bond issue on the part of this newly formed city. Due to the closeness of the vote on incorporation, it would be almost impossible for a bond issue to be passed by the necessary majority.

(4) This city receives no revenue from the current collectors except for a small license tax. While the legislation would not stop the collections at once it would be bound to have that effect sooner or later when it went into real effect. This city cannot and in the near future could not make these collections as there would be not sufficient funds to buy the equipment or to buy property for a fill and cover site for long term disposal.

It is believed by the council that it would be better to have some organization make a study of garbage disposal in order that a safe, convenient and economical method be found rather than at present to require many small communities to cope with a problem with which they are illy equipped to handle from a financial standpoint or from a standpoint of the experience.

Very truly yours,

Edward G. Hagen
City Clerk

CITY OF COMPTON

November 26, 1952

Senator George J. Hatfield, *Chairman*
Joint Legislative Committee on
Agriculture and Livestock
State Building, Los Angeles, California

Dear Senator Hatfield: Councilmen of the City of Compton are seriously concerned about proposed legislation which would ban the feeding of raw garbage to hogs, and have directed me to tell your committee how such legislation would affect Compton, and their thoughts on how the problem might better be attacked than by outright prohibition.

An average 120 tons per week of garbage is collected in Compton by a contractor who hauls it six miles to his ranch where it is fed to hogs. No cash payment for the garbage is made to the city, but its value is reflected in lower unit costs for collection, thus reducing service charges to residents.

Our small 12-acre dump is nearly filled because the Air Pollution Control Board requires burial of combustible materials, and because of flat terrain in the south coastal plain other dump sites are practically nonexistent. In addition, in our effort to find a new site, we have learned that the State Water Pollution Control Board will not sanction burial of garbage in this area because extremely porous soil conditions might lead to pollution of underground waters.

Our contractor has told us that cooked garbage is not desirable for hog feeding, and that should feeding of raw garbage be banned he would take advantage of the cancellation clause in his contract and discontinue collection.

We would thus be put in the position of being unable to feed garbage or to bury it. Any alternatives to these two methods are so surrounded by a mass of variables, imponderables and misinformation, and would so vastly increase costs, that no sensible conclusions can be made.

For these reasons our city councilmen believe that we are not now ready for outright prohibition of raw garbage feeding. Instead, they believe that the Legislature should first make a substantial appropriation of funds for a realistic program of study and research into this whole problem, to the end that some practicable and economical method of disposal can be devised and plans made for putting such a program into operation.

Respectfully,

City of Compton
K. B. Douglass
City Manager

CITY OF CORONA

December 3, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: I am writing you in regard to the proposed legislation to prohibit the feeding of raw garbage to hogs. This kind of legislation would affect the sanitary operations of the City of Corona.

Our current annual garbage collection amounts to approximately 1,000 tons. The garbage is now being hauled to a nearby hog ranch and fed to hogs. Since our city is only partially sewered, our only alternative should hog feeding become illegal, would be the sanitary fill type of disposal.

At present, we pay a contractor $400 per month to pick up the garbage. He sells the garbage to a hog rancher for $67.50 per month. The total actual cost, then, is $467.50 per month for garbage disposal.

The current average cost of burying a ton of garbage in the Southern California area is about $2.50. Being small operators, our costs would probably be higher.

The legislation which you are considering would increase our garbage disposal costs $3,310 per year. This represents an increase of 69 percent over our present costs.

I sincerely hope that this information will be valuable to you in your deliberations.

Respectfully yours,

William J. Mount
City Manager

CITY OF CORONADO

December 2, 1952

The Joint Committee on Agriculture and
Livestock Problems
California State Legislature
Sacramento, California

Gentlemen: The City of Coronado has recently been advised of proposed legislation prohibiting feeding of raw garbage to hogs.

It is not the intention of this office to condone or support this practice but, at this time, to point out the practical difficulties encountered in terminating this method of disposal.

The City of Coronado collects over 1,500 tons per year, using its own equipment, and delivers it to a pick-up point where a private contractor collects and delivers it to the feeding pens. The annual income from this sale averages close to $5,000, and has the additional advantage of allowing the garbage to be removed from the city. Should this practice be abandoned, the city would not only suffer loss of this revenue, but would be forced to the cut and fill process. It is estimated, roughly, that the purchase of necessary equipment the first year would be over $13,000. Annual cost of the process would exceed $6,000 plus depreciation and replacement of equipment.

In the final analysis, the city would suffer an annual loss of not less than $10,000 at a minimum.

In view of the above, the City of Coronado would have no other choice than to oppose this legislation at this time.

Yours very truly,

Glenn Wade
City Manager

CITY OF EL MONTE

November 26, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
Sacramento, California

Dear Sir: The City of El Monte wishes to respectfully submit to your committee the serious results attendant upon legislation requiring that our garbage be cooked before being fed to hogs.

We are now collecting approximately 5,000 tons of garbage over a year's time. This garbage is fed to hogs in an uncooked state. Our contract calls simply for the collection of raw garbage and the charge for the collection is set at a rate of 25 cents a month per water service. This charge, of course, is well below the cost of the nine pickups per month.

It is our opinion that, should legislation be passed requiring the cooking of the garbage, our contract would become inoperative and, therefore, subject to cancellation. We have no alternative method of disposal and would have to rely upon some new method of disposal being provided. What the added cost of this method might be is entirely unknown to us.

It would seem that if such legislation is deemed imperative that new methods of disposal should be set up well in advance and that added costs be made known so that the revenue could be provided.

We ask that the approach to the establishment of any revolutionary requirements be made with the thought in mind that all governmental entities involved be given ample time to adjust their facilities and their sources of revenue to meet the added requirements.

Very truly yours,

Fred King
Administrative Officer

CITY OF EL SEGUNDO

December 1, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
c/o League of California Cities
440 Statler Center, Los Angeles 17, California

Dear Sir: The League of California Cities has requested that we supply you certain information relative to the collection of garbage in this city and the effect that legislative prohibition of garbage feeding to swine would have upon this operation in this city. Accordingly, the following information is submitted:

A. There is approximately 1,080 tons of garbage collected annually within our corporate boundaries.

B. Present disposal is by feeding the raw garbage to hogs.

C. In the event that feeding the raw garbage is prohibited this city would first attempt to find a suitable area for the cut and cover method of garbage disposal as a temporary solution and would, in the meantime, attempt to arrange for the construction and operation of a central grinding station with discharge to the public sewer as an ultimate solution.

D. This city derives no revenue from its present raw garbage disposal arrangement since the hog feeder makes no payment therefor.

E. While legislation prohibiting swine feeding of garbage would not terminate our present contract, it would adversely affect it in that the contractor would be put to a considerably increased expense in the disposal of the garbage and this would be reflected to us either in a negotiated increase in cost or in a relatively poor grade of service.

F. It is estimated that use of the cut and cover method of disposal would result in a very considerable increase in the cost of garbage collection and disposal for the city and it is extremely doubtful that there is sufficient area available for such an operation to satisfy our requirements for more than two or three years. It is also estimated, however, that central grinding with discharge into the public sewers would not result in any great increase in disposal costs after such a plant were constructed and in operation.

G. This city feels that garbage feeding to hogs is not a satisfactory method for disposal of this material and that a more sanitary method of disposal be found. We also feel, however, that it is not practical to legislate against garbage feeding without a reasonable time for cities to adjust their operations to a new disposal method.

Very truly yours,

Donald R. Short
Director of Public Works

CITY OF ESCONDIDO

December 2, 1952

The Honorable George J. Hatfield, *Chairman*
Legislature Interim Committee on
Agriculture and Livestock Problem
c/o League of California Cities
440 Statler Center, Los Angeles 17, California

Gentlemen: This letter is to inform your honorable body of the effect that the proposed legislation prohibiting the feeding of raw garbage would have upon our disposal problem.

We handle our disposal under contract, producing approximately 800 tons of garbage per year which is fed to hogs.

It is probable that if the feeding of uncooked garbage to hogs is prohibited we would lose our contractor as he is not in a position to dispose of the garbage other than as feed.

If the city would have to take over the collection and disposal of our refuse and go into a sanitary fill method—provided this would be the economical method—it means a capital outlay of from $75,000 to $90,000 and an annual operating cost of about $18,000 to replace a service in which we now have no capital investment or operating expense.

It is our opinion that this legislation should be postponed for at least two years, so that the cities can study and determine the most economical methods for them to use when and if legislation is made effective. Also that the University of California or some other competent agency be financed to study methods for the control of the disease and thereby relieve the cities of the necessity of such heavy expenditures involved if the legislation is passed at this time.

Very respectfully,

C. M. Reed
City Administrator

CITY OF FILLMORE

December 4, 1952

Joint Legislative Committee on
Agricultural and Livestock Problems
Los Angeles, California

Gentlemen: Regarding proposed legislation which would prohibit feeding garbage to hogs:

Our contractor feeds garbage to hogs—and the take is about 1,528 tons per year. We pay him $1,500 a year. *No revenue to the city.*

There are no alternative methods of garbage disposal in sight at this time, for the following reasons:

a. There is no land available for fill and cover. The city dump ground is on the south bank of the Santa Clara River, hence burying garbage there would be prohibited, on account of the risk of water pollution.

Sespe River is near our west boundary. Some land is available there, perhaps, but the danger of water pollution would be very great.

To the north are many mountains—most of them difficult of access.

To the east are some mountains and an extensive citrus planting, precluding the burying of garbage. The citrus land is also contiguous to Santa Clara River.

b. An incinerator is out of the question, for financial reasons. Our present net bonding capacity is $345,813—which we had hoped to use for part of the construction costs of a sewer system. That amount of money would not go very far toward construction of an incinerator.

Assuming that a disposal site is found, our costs for the first year would run well over $12,000 for equipment and labor alone, to which must be added the cost of land. This produces an increase over our present method of more than $10,500 for the first year.

This proposed legislation poses a very definite threat of disaster to the City of Fillmore.

Yours very truly,

CITY OF FILLMORE
C. Arrasmith
City Manager

CITY OF FRESNO

February 9, 1953

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agricultural and Livestock Problems
State Capitol, Sacramento, California

Dear Sir: By letter of December 31, 1952, the League of California Cities requested that I inform you of the effect upon the City of Fresno of any legislation prohibiting the feeding of raw garbage to hogs. Accordingly, I submit the following for your consideration.

The City of Fresno disposes of its general refuse and garbage from domestic sources by the land fill method. Garbage from certain large sources, such as hotels, restaurants and produce markets, is collected by a private contractor who pays the city for the privilege of exclusive collection from such sources within the city. It is estimated that this private contractor collects daily between 8 and 10 tons of raw garbage which he feeds to hogs. The contractor has heretofore given thought to cooking the garbage, so that legislation prohibiting the feeding of raw garbage to hogs might not have the effect of eliminating the present contractor from continuing his operations.

Should the feeding of raw garbage to hogs be prohibited and should this prohibition eliminate the present means of disposing of the raw garbage from the large sources above mentioned, the immediate economic effect upon the city would be loss of revenue earned by the contract (at present, $5000 per year), plus the expense to the city of adding an estimated two trucks and crews to the refuse collection system to handle the additional garbage which it would then become the city's task to collect. The garbage would be disposed of by the land fill method at the same site at which all other refuse is presently disposed of at no additional expense at the site.

Should the party who presently has the right of exclusive collection of mentioned garbage elect to continue collection and cook the garbage, if required, the collector probably would pay the city less for the privilege of collection than at present to offset the expense of cooking the garbage.

It is felt that a thorough study should be made of the problem before any legislation is enacted prohibiting feeding of raw garbage to hogs.

Very truly yours,

James Snedeker
Commissioner of Public Works

CITY OF FULLERTON

December 5, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: The City of Fullerton is vitally interested in any legislation prohibiting the feeding of raw garbage to hogs. There are two hog farms located within our city limits which are used by our city and others in this area for the disposal of garbage. We have long felt this to be a temporary measure as the feeding of raw garbage to hogs presents many problems from a health standpoint and also the odor nuisance and is a constant threat to the rapid development in Southern California.

From an economic standpoint the feeding of garbage to hogs is the least expensive and has been the common practice by most of the cities in this area for many years and any new method of disposal would create a substantial increase in cost. It costs the City of Fullerton with a population of 20,000 approximately $10,000 a year to a private contractor for the collection and disposal of our garbage amounting to 1,440 tons. If we required the contractor to cook the garbage, and I do not believe this to be "practical," the cost per year would be considerably more and if the hog ranches were eliminated the city would be required to purchase land and provide facilities for the cut and cover method, which would be even higher. If cities are compelled to go to a cut and cover method of garbage disposal it would seem there should be one central site to serve a number of cities as it would be almost impossible for each city to provide their own disposal area.

We agree with the suggestion that any hasty action on this vital matter would be a mistake and a thorough study of the problem should be made before any final decision is reached as to the proper procedure.

Yours very truly,

H. A. Hiltscher

CITY OF GARDENA

November 26, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: This letter is being written to present factual data opposing any hasty action that would prohibit the feeding of raw garbage to hogs, or legislation that would require the cooking of garbage prior to usage as hog food.

Any legislation with these aims in mind would create a definite financial hardship upon the City of Gardena, and, in addition, would present serious difficulties in arranging for either a sanitary fill or a fill-and-cover operation since the City of Gardena does not possess the necessary long-range sites for either one of these operations.

Our present contract with the Municipal Service Company, Mr. J. T. Agajanian, president, for the collection of garbage, combustibles, and noncombustibles was entered into on February 1, 1952, and runs until January 31, 1956. (The City Council of the City of Gardena has the option to extend this contract for an additional five-year period.) This contract was signed for the very nominal fee of 53 cents per unit (dwelling) per month; and, in addition, the city has received excellent service from the Municipal Service Company since the date of our first contract which was executed in September, 1943. This low unit price of 53 cents is possible only because the garbage is presently utilized as hog food.

At the present time the Municipal Service Company is removing 175 tons of garbage per month 2,100 tons per year, from our city. This tonnage has been increasing rapidly due to the increased building activity.

Our 1952-53 budget allocation to carry this contract is $30,581. If, however, the garbage could not be used as hog food, our contractor informs us that our 53 cents unit cost would be more than doubled, which would mean an additional yearly cost to the city of approximately $30,000.

Since no provisions for this type of contingency was made in our contract with the Municipal Service Company, the passing of legislation of this type would present legal problems to both the city and the contractor. In addition, we would be faced with tremendous problems involving health and finance.

We sincerely hope that you will do everything in your power to oppose any immediate action on this matter.

Very truly yours,

ROBERT W. SHELBY, Councilman
Chairman, Public Service Committee

CITY OF GLENDALE

December 3, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR MR. HATFIELD: Your letter of November 24, 1952, addressed to Mr. C. E. Perkins, City Manager, has been referred to this office. Please be advised that I will attend the meeting on December 9, 1952, in the State Building, in Los Angeles.

With reference to the inquiries set forth in your letter, I wish to submit the following information:

(a) The estimated total amount of garbage collected annually in the City of Glendale is approximately 12,400 tons, based on an average of 40 tons per day for a population of 113,000 people.

(b) Garbage is fed to hogs, same being collected by the Trio Feeding Company, with ranches located in the vicinity of Artesia and Newhall.

(c) The only alternative method of disposal would be to burn garbage. The City of Glendale has an incinerator with a capacity of 112½ tons per 24-hour period. At the present time, we are burning between 80 and 90 tons of combustibles daily, including Saturday, and working 20 hours per day. If garbage was to be burned, it would necessitate an additional incinerator, which would cost approximately $110,000. The incinerator which is presently situated in the City of Glendale is of such construction that a second incinerator could be installed in the same building.

(d) The City of Glendale at the present time contracts its garbage, and in talking with the representative of the Trio Feeding Company, the price of garbage is worth approximately $0.52 per ton. The contract which the City of Glendale has with the Trio Feeding Company calls for collection and disposal and at the present time, we are paying them $7,283.18 per month. If the feeding of hogs is discontinued, undoubtedly, the contractor would not allow anything for garbage and the estimated additional minimum cost to the City of Glendale, based on 40 tons, would be $100.80 per day, or an estimated annual total, based on 310 days of collection, of approximately $31,248.

(e) There are no provisions in the present contract for termination of contract. However, on March 1, 1953, the City of Glendale will enter into a new contract. In event of the enactment of federal or state legislation prohibiting the feeding of raw garbage to hogs, the contractor may terminate the contract provided that written notice of intent to cancel the contract must be given to the city at least 90 days prior to the effective date of such cancellation.

(f) The estimated cost of burning garbage would be approximately $2 to $2.10 per ton and value of garbage is approximately $0.52 per ton, or $6,448 per year. To my knowledge, there are no areas in this vicinity which would permit either "fill and cover" or "sanitary fill." The City of Glendale has an ordinance which prohibits the burning of garbage.

(g) As stated above, the estimated additional cost to the City of Glendale would be approximately $31,248, if it were necessary to burn the garbage, and the minimum cost of burning garbage is $2 per ton and garbage at the present time in this area is estimated as being worth $0.52 per ton, making a total additional cost to the city of $2.52.

(h) If the feeding of garbage is prohibited, I believe same should be considered over a period of time so that this city could ascertain how same could be financed, as at the present time, this has not been included in any of our budgeting.

In conclusion, I might add that I will appear at the meeting to present further facts on this matter.

Thanking you for the opportunity of discussing this matter, I am

Yours very truly,

J. C. ALBERS
City Engineer and
Street Superintendent

CITY OF HOLTVILLE

December 2, 1952

THE HONORABLE GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agricutlure and Livestock Problems

DEAR MR. HATFIELD: The members of the City Council of the City of Holtville, voted in their meeting of November 28, 1952, to go on record as opposing the proposed legislation to prohibit the feeding of raw garbage to hogs, or require that before any garbage is used for feed for livestock it must be cooked, until such a time as there is more definite proof that raw garbage is detrimental to livestock.

Sincerely,

LUCILLA H. MARQUAND
City Clerk

CITY OF LAGUNA BEACH

December 1, 1952

THE HONORABLE GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR SIR: It is the understanding of this city that legislation may soon be introduced to prohibit the feeding of raw garbage to hogs or to require that before any garbage is used for feed for livestock it must be cooked.

Such prohibition or requirement would greatly affect the city's costs for disposal of garbage. The only economical method for disposal of garbage locally has been by selling to a hog ranch operator for feeding purposes. We are advised that such hog ranch operator is not prepared to install facilities to cook garbage before feeding to livestock.

With an average 1,306 tons of garbage collected yearly, or over four tons per collection day, the problem of disposal is a very real one. If raw garbage feeding is not permitted, the city would find other possible disposal methods expensive. If the "cut and fill" or "sanitary fill" method is considered, availability of suitable land for such operations is not good. We have our doubts that land for such use could be secured in our vicinity. The hilly topography surrounding Laguna Beach certainly prohibits securing a site within a reasonable hauling distance. In addition to excessive hauling expense, the "cut and fill" operations would cost the city an estimated several thousand dollars a year even after the initial capital investment for land and equipment.

It may be possible to dispose of garbage through our sewage treatment plant by installation of a large garbage grinder at the plant. We do not know that the plant could handle such volume of garbage and still treat sewage properly but if it could, the initial investment in equipment, its maintenance, the added costs of operating the plant, and the additional hauling of sludge from the plant would be a substantial expense.

With an annual budget cost of $43,000 to collect and dispose of garbage and trash, the city would be faced with the loss of $1,800 in revenue presently received from the sale of garbage and fairly believes that an alternative method to that now used for disposing of garbage would mean an increase of annual expense to Laguna Beach amounting to $10,000 to $12,000.

The city will be unable to have a representative present at the hearing to be held on December 9.

Respectfully submitted,

City of Laguna Beach
By: E. H. Beaver
City Clerk

CITY OF LA VERNE

December 3, 1952

The Honorable George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Mr. Hatfield: The City of La Verne is concerned with the proposed legislation to prohibit the feeding of raw garbage to hogs or to the cooking of garbage before it is used for feeding to livestock. Such legislation will present the City of La Verne with a serious financial problem.

The collection of garbage is now done under an agreement and contract with a disposal contractor who feeds it to hogs. The estimated total amount of garbage collected by our contractor annually is at present 416 tons. The cost to the city under this contract is $245 per month. Said contract expires as of January 15, 1954. If our disposal contractor was not allowed to sell the garbage for hog feed and it was still possible to dispose of it, the estimated minimum additional cost to the city would be $4.50 per ton, thus almost doubling the cost of garbage disposal.

The cost of cooking raw garbage to our present contractor would be prohibitive thereby causing the city the problem of finding a way to dispose of the garbage and such legislation would adversely affect or terminate our contract.

No land in our immediate vicinity is available for "fill and cover" or "sanitary fill" methods of disposal. The small contractors cannot afford the installation of cooking facilities. Neither can they afford the expense of a long haul to some available facilities.

The City of La Verne requests that study and research should be undertaken for practical methods to meet this problem before any action is taken which would prohibit the feeding of raw garbage or to require its cooking before use for hog-feed.

Sincerely yours,

Chas. E. Overholtzer
City Administrator

CITY OF LONG BEACH

December 2, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: This office has been informed by the League of California Cities that your committee has under consideration proposed legislation designed to prohibit the feeding of raw garbage to hogs, or to require that, before any garbage is used for feed for livestock, it must be cooked.

This proposed legislation poses a serious problem to the City of Long Beach. At the presnt time the city is disposing of approximately 25,000 tons of garbage annually, which is sold to a contractor and utilized for hog feeding. The proposed legislation, if enacted, would cancel such contracts. The City of Long Beach would then be faced with the problem of disposing of this quantity of garbage by other means which would be costly.

Aside from the loss in revenue obtained under the contract, it would be necessary for the city to expend considerable sums of money to provide proper equipment for such disposal, since, in this congested area, the question of disposing of such a large quantity of garbage by the "cut and cover" method is out of the question.

During the last fiscal year the city received $66,000 for raw garbage taken by the contractor. Since, however, hog ranches previously located in this area have been prohibited, it is necessary that the city enter into a new contract commencing January 1, 1953, at a lesser rate in order to compensate for the long haul for delivery to hog ranches located at a distance from this city. However, the estimated return under the new contract is still substantial, amounting to $45,000.

Aside from the loss of revenue and the additional cost of providing facilities for disposal, and other economic factors which would increase the tax burden, there still remains the larger problem of the city being compelled to find a method, acceptable to the citizens of this community, for garbage disposal.

It is the position of the City of Long Beach that the enactment of the proposed legislation, unless it provided for sufficient time to arrange for adequate facilities to handle this problem, would be very damaging. It is requested, therefore, that in your consideration of this matter, a time allowance of at least three years be provided before such legislation would become effective.

Very truly yours,

Samuel E. Vickers
City Manager

CITY OF LOS ANGELES

December 2, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: Your honorable committee on August 8, 1952, submitted to the Senate and Assembly of the California State Legislature, as a partial report of your committee, a special report made to the committee by the Department of Agriculture, State of California, dealing with the subject of vesicular exanthema of swine. The report suggests that such disease be controlled by the legislative prohibition of feeding of uncooked garbage to swine. We are pleased that in your study of this problem you have afforded the municipalities of the State the opportunity to present statements as to how such legislation, if passed, would affect their refuse disposal programs.

The disposal of municipal raw garbage to hog feeders for feeding swine has been practiced by municipalities and refuse collection and disposal districts in this area for many years. In fact, only two known exceptions to such practice in the whole of Southern California exists at the present time. The *disposal* of raw garbage by this means has in practically all cases resulted in providing a direct or indirect revenue to the municipality and has certainly been the most economically advantageous method available since all other accepted and proven methods impose an expense upon the city. Further, the feeding of garbage has the additional advantage of utilizing a resource that might otherwise be wasted. Therefore, since it is the duty and desire of public officials charged with waste disposal to provide their respective communities with a legal and satisfactory method at the lowest cost, it at once becomes evident why the sale of raw garbage to hog feeders has been so universally adopted.

The City of Los Angeles collects and disposes of, through sale to hog feeders, approximately 175,000 tons of raw garbage annually. All garbage collected within the city is disposed of in this manner, and the contract sale thereof has resulted in revenues to the city varying from $154,124 to $282,297 annually, and averaging $222,376 annually, during the past 10 years.

Each of the city's garbage disposal contracts contain a provision that the contractor shall be released, if he so desires, from the contract if the State enacts legislation prohibiting the feeding of raw garbage to hogs. Information received by the city heretofore from two of its disposal contractors who have conducted feeding tests on cooked garbage in the past indicates that the results of such tests were unsatisfactory from the feeders' viewpoint. Direct information, of course, on this matter may be obtained by your committee from the local hog feeding industry.

I believe that enforced cooking of garbage would eliminate garbage as a hog food and would also eliminate the hog feeding and processing industries in this area. Under such circumstances a satisfactory alternate method of disposal would have to be found and the facilities provided therefor. The other accepted and proven methods of disposal which should be considered are: (1) fill and cover or "sanitary" fill; (2) incineration; (3) grinding and disposal of the ground garbage into the sewerage system; and (4) dumping at sea. Local conditions within each municipality would determine which of these is the most suitable for that municipality.

The City of Los Angeles lacking sufficient suitable dump sites within reasonable hauling distance would in all probability be forced to undertake disposal by incineration. Such disposal would require that the garbage be collected as wrapped garbage, with an increase in truck equipment and personnel in the collection forces to compensate for the added bulk of the paper wrappings required to provide at least part of the fuel for incinerating the high moisture content garbage, and would require the construction and operation of a system of incinerators for the disposal of the wrapped garbage. Although the City of Los Angeles now has under construction two incinerators, these are being provided for the disposal of combustible rubbish (not garbage) from residential, commercial, and industrial sources within the city. Although no detailed estimate has been made on the cost of garbage incineration facilities it is reasonable to expect that the cost of providing such facilities would be in the neighborhood of three to four million dollars, and that the estimated operating cost for such disposal would approximate $600,000 annually. It is probable that the necessity of incinerating garbage may also force the City of Los Angeles into the collection and disposal of combustible rubbish by incineration to provide adequate combustibles to support the incineration of the garbage. Such a collection and incineration disposal system for combustible rubbish would require an added estimated capital expenditure of $14,000,000 and an additional $5,623,000 annually for operation thereof, including amortization of capital improvements.

Inasmuch as the feeding of uncooked garbage to hogs is not definitely known to be the basic cause of vesicular exanthema in swine, and since the adoption of legislation prohibiting the feeding of uncooked garbage to swine would so seriously affect the established economics of practically every community in the State, the adoption of such legislation should be approached only with the greatest of care and study. The Special Report of the Department of Agriculture points out, in spite of the fact that feeding of uncooked garbage has been used extensively throughout the Nation during the past several decades, that "for over 20 years the disease was confined within the borders of California." This would certainly cast doubt on the assumption that the feeding of uncooked garbage is the true cause of vesicular exanthema in swine. More investigation to definitely fix the cause or causes of the disease appears to be in order.

It is not our desire or intent to continue any practice which is proven to be detrimental to the welfare of the Country as a whole. However, we are hesitant to abandon a practice which has economic advantages to the various communities and which permits the conservation of valuable food materials.

It is therefore requested that your committee do not recommend legislation prohibiting the feeding of raw or uncooked garbage to swine until such feeding is definitely shown to be the cause of vesicular exanthema, and that in lieu thereof your committee recommend that immediate consideration be given to authorizing an adequate appropriation to support a thorough research program by the University of California and other qualified agencies, of the vesicular exanthema disease in swine for the purpose of determining to the fullest extent possible the causes and means of transmission of such disease.

Yours very truly,

W. A. Schneider
Waste Disposal Engineer
City of Los Angeles

Approved by:

Harold W. Nash, President
Board of Public Works
City of Los Angeles

CITY OF MANHATTAN BEACH

December 4, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Gentlemen: We have been advised that your committee is holding hearings on proposed legislation to prohibit the feeding of raw garbage to hogs, or require that before any garbage is used for feed for livestock it must be cooked. This communication is transmitted to the committee to advise how such legislation would affect the City of Manhattan Beach.

At the present time our refuse disposal operation includes the collection and disposal annually of better than 2,200 tons of raw garbage. It is anticipated that this volume of garbage will gradually increase to an estimated 2,500 and perhaps 3,000 tons annually based on our population growth and building activity. Our refuse operation for the entire city is accomplished under contract. The contractor disposes of the garbage collected from the entire city by feeding this raw garbage to hogs. We have just completed this fall, negotiations for a three-year contract for this purpose and know that the disposal contractor has based his operation and the prices therefore on the raw garbage available for hog feeding at his ranch. Obviously the value of the garbage has been considered in the price bid by the contractor for the complete operation including combustible and noncombustible rubbish as well as raw garbage.

Upon learning of this proposed legislation we have immediately attempted to determine what effect the same would have on our present refuse disposal operation. In discussing this matter with our contractor he advises that his operation would naturally be adversely affected and that he would take steps to terminate the contract. Such an action of course, would be detrimental to the public health and safety of this community since we are not equipped to take over this operation nor do we have any facilities for an alternate method of disposal. If the contractor were to continue his operations which, of course, may undoubtedly mean a renegotiation of the contract, it would mean that the only method of disposal would be "fill and cover" or "sanitary fill" since our contractor advises us that he has conducted experiments on the feeding of cooked garbage and has determined that hogs will not eat such feed. Since there is no possible means to incinerate garbage as a waste product either in our community or nearby, the only remaining method of course, would be at a fill site and our contractor again advises in this respect that it is questionable if permits could be obtained for such an operation since he has been verbally notified of disapproval by officials concerned.

What alternate method of disposal would be used if the feeding of raw garbage is prohibited is impossible to determine at this time but we know that the solution is not a simple one and is not immediately forthcoming. We also know that alternate methods such as fill and cover, incineration, or even grinding and disposal into the sanitary sewer system would incur extraordinary costs of operation and capital outlays of considerable amount and of course, are practical problems that cannot be solved immediately.

The City of Manhattan Beach does not stand alone in this problem since it will affect many other communities of this area and the State. Therefore, we sincerely submit the above facts and earnestly request the honorable committee's thorough consideration of this problem as one of major importance to the communities of the state and the population which they serve, and that adequate study and research should be undertaken to determine practical methods to meet the problem.

Respectfully yours,

C. G. Petrie
City Manager

CITY OF MONROVIA

December 9, 1952.

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
State Building, Los Angeles, California

Dear Sir: The City of Monrovia does not favor legislation prohibiting the feeding of raw garbage for hog feed.

a. The disposal company handling garbage for the City of Monrovia estimates the quantity at about 4,000 tons annually.

b. Disposal is by feeding raw garbage to hogs.

c. There are two alternatives of disposal—incineration or cut and cover. Present contractors feel that the cost of cooking all garbage and the resultant loss of food value would make the cooking process prohibitive.

d. The City of Monrovia obtains no revenue from garbage.

e. The proposed legislation would most certainly adversely affect our contract and probably double costs.

f. Any alternative method of disposal because of lack of convenient fill site or incinerator would probably increase our cost between 50 percent and 100 percent.

g. Our present garbage collection cost is 50 cents per month per water meter monthly, and it is estimated that any other method of disposal would increase this cost to between 75 cents and $1.

h. It is believed that the additional costs are not currently warranted on the basis of information available.

Very truly yours,

Walter H. Butikofer
Councilman.

CITY OF NATIONAL CITY

November 28, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: The City of National City produces about 2,000 tons of garbage a month. It is all disposed of by hog feeding. If the feeding of raw garbage is prohibited, the city has no alternative method for disposal at the present time.

Current revenue to the city is $100 a year for a franchise for the exclusive privilege of picking up garbage within the city limits. If hog feeding of garbage is discontinued, the city would be compelled to buy equipment and provide labor to carry on this work. The cost of this equipment would be approximately $8,000. The cost per year for its operation would amount to $24,000. The city is not in the position at the present time to provide funds for this sudden change.

The disposal of the garbage after its collection is another problem. This might conceivably cost the city an additional sum. We are certainly opposed to the enactment of the proposed legislation.

Respectfully submitted,

F. A. Rhodes
City Manager

CITY OF NEEDLES

December 1, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
League of California Cities
440 Statler Center, Los Angeles 17, California

Dear Mr. Hatfield: The problem of the effects of feeding raw garbage to hogs is one which is being discussed throughout the Country. It would appear from reports read by the reader that further study is required before definitive action is taken.

The garbage contractor to the City of Needles uses raw garbage for hog feeding. He does so under strict control and by permit from the Department of Health and the Planning Commission of the County of San Bernardino. This city of 5,000 people does not furnish garbage in sufficient amount to provide full diet for very many hogs; however, there is little doubt that if the practice were discontinued, the city would have to pay from $100 to $200 more for the service. If the practice were discontinued the garbage most likely would be dumped and burned, but not subjected to the most sanitary method, because of the prohibitive cost in such a small operation. If conclusive evidence were presented that feeding hogs raw garbage is detrimental to public health it would appear that the money saved by hog feeding would not justify its continuance; but to date that proof or an economically feasible substitute for the practice has not come to the attention of the writer. If the practice were terminated it would not end our present contract, but it would probably lead to a renegotiation.

The City of Needles has no problem regarding a dump site but the adoption of the fill and cut or sanitary fill methods would significantly raise the cost to the point where the city would lose money.

Yours very truly,

Robert L. Williams
City Manager

CITY OF OCEANSIDE

December 2, 1952

The Joint Committee on Agriculture and
Livestock Problems
California State Legislature
Sacramento, California

Gentlemen: The proposed legislation which would prohibit the feeding of raw garbage to swine, if enacted without careful planning, could develop a serious problem to the City of Oceanside.

During 1952 we expect to collect 1,500 tons of wet garbage, including swill. This raw garbage is disposed of by feeding to hogs. Our production averages one-half pound per capita per day.

The alternate methods of disposal would have to be studied to determine which would be most practical for our community. Then, additional time would be needed to budget and provide the funds for the change. Our legal contracts for garbage acceptance should be terminated agreeably. Two years would be the minimum time in which to accomplish a change.

Our revenue from the sale of raw garbage runs $3,000 annually. The proposed legislation would stop this.

For just a glance at how seriously Oceanside would be effected by the proposed law, we have no land that would serve for a convenient fill site and very likely our alternate method of disposal would be by screening and grinding and processing through our sewer plant. Immediately we would have to begin construction of another digester at a cost of $75,000. Our entire ad valorem taxes amount to a little over twice that amount.

We urge that you delay the passage of this legislation. We recommend that the University of California be prepared and instructed to (1) study the cause and control of the skin infection to hogs fed with uncooked garbage; (2) study the alternate methods of garbage disposal and prepare a report of facts and figures that will aid our California cities when the change is necessary.

Sincerely,

Hal M. Friend
City of Oceanside
Transportation Department

CITY OF OJAI

November 28, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
Los Angeles

Dear Senator Hatfield: During the regular meeting of the City Council of the City of Ojai held on the twenty-fourth of November, 1952, the proposed meeting to be called by you to be held at the State Building in Los Angeles on December 9, 1952, was given serious consideration.

The subject matter, "that of feeding raw garbage to hogs should be prohibited and that before any garbage is used for feed for livestock it must be cooked," was discussed with relation to the effects the legislation would imposed on the City of Ojai. Particular attention was given to the financial burden on the city if such legislation is passed.

As a result of the city council's deliberation, I was instructed to make the following statements regarding the decision reached by the City Council of Ojai:

A. The estimated amount of garbage collected annually in Ojai is 190 tons.

B. The raw garbage is fed to hogs.

C. The city would be compelled to consider incineration or fill and cover if a feeder could not be contracted with who would be able to comply with proposed legislation.

D. At the present time, the city does not receive any revenues from the feeder who collects the raw garbage within the city or does the city assume any cost.

E. It is possible that the present feeder could continue collecting raw garbage in the city, however that would be controlled by the requirements of the proposed legislation.

F. The estimated annual cost of an alternate method of disposal would involve the expenditure of several thousands of dollars to the city. It would require the purchase of equipment, the hiring of additional employees and the securing of a "sanitary fill site," which is not available in the valley. The possibility of incineration is not considered due to the cost and the lack of a proper site.

G. At this time it is not possible to estimate the annual cost for garbage disposal to the City of Ojai, if the proposed legislation is enacted and the city is required to provide an alternate method of disposal other than that presently in operation.

The City Council of Ojai feel that they will further the discouragement of the type of legislation that the Committee on

Agriculture and Livestock Problems recommends with reference to the cooking of raw garbage for feeding hogs.

Very truly yours,

JOSEPH C. WELCH
City Administrator

CITY OF ONTARIO

TELEGRAM:

1952 Dec. 16 A.M. 11.55

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SENATOR HATFIELD
Joint Interim Committee of the State Legislature on
Agriculture and Livestock Problems
Senate Office Building, Sacramento

Ontario opposes any legislation eliminating raw garbage hog feeding until adequate research indicates practice unhealthy.

G. E. MCQUATTERS
Mayor, City of Ontario

CITY OF OXNARD

December 2, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR SENATOR HATFIELD: The City of Oxnard is vitally concerned with the topic of the meeting to be held in the State Building in Los Angeles at 10 a.m. on Tuesday, December 9, 1952, regarding proposed legislation to prohibit the feeding of raw garbage to hogs.

It is estimated at the present time that we are disposing of approximately 4,000 cubic yards of garbage per year, all of which is being used raw for hog food. The present cost of our operation to the taxpayers of the city is $1,200 per year and if such legislation were proposed, we feel that it would automatically terminate our existing contract. This, naturally, would necessitate a different method of garbage disposal which, we feel, would create an undue hardship on our city. It is the opinion of some hog raisers that cooked garbage would not be an acceptable type of food, because of the fact that types of food which are not palatable to hogs would be cooked in with the entire mixture, thus creating the possibility that the finished food product might not be usable.

We have investigated the cost of an alternate method of garbage disposal and are presenting estimated costs to the city. The cost for the first year of operation would be $24,966, which amount would include the purchase and equipping of one truck, the purchase of a used bulldozer, the purchase of a site suitable for a cut and fill operation, the hiring of one truck driver and two helpers, and the estimated cost of operation for the truck. The itemized statement following shows the estimated individual costs of these items:

One truck	$3,500
One used bulldozer	3,000
Twenty acres of land	7,000
One truck driver	3,170
Two helpers	5,800
Truck operation and depreciation	2,496
Total	$24,966

The high cost for the operation of the truck would be necessitated by the fact that the only property which might be purchased as a site for this type of operation would be located approximately 15 miles from the city. With the present amount of garbage collected, it is felt that the operator of the truck could devote enough time to the operation of the bulldozer to avoid the hiring of additional help for this purpose. Of the total amount to be expended during the first year, $11,466 would be an annual recurrent expense. Deducting our present cost of operation, the initial year's expenditure would be $23,766, with the recurring annual expense of $10,266. Ignoring the initial outlay for equipment, the annual cost would be increased by twelve and one-half times.

We feel, at the present time, this is an undue hardship to place on the taxpayers of the City of Oxnard and, before any decision is made by your committee, that an additional appropriation should be made to cover the expense of further research and study of the subject.

Our city will be represented at the meeting and will, at that time, explain any items connected with the above statements. We request your favorable consideration of our position.

Very truly yours,

LYELL C. CASH
Acting City Manager

CITY OF PALM SPRINGS

November 28, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR MR. HATFIELD: With reference to proposed legislation requiring that garbage be cooked before using as hog food, the City of Palm Springs would suffer financially from such legislation.

A hog feeder presently collects 685 tons of garbage from the business district during a nine-months period each year. Because of the resort nature of this city very little restaurant garbage is produced in the summer months.

The hog feeder pays the city $800 a year for the privilege of picking up the garbage and in addition supplies all equipment and labor. If garbage had to be cooked this arrangement would be terminated. The city would then be put to the following expense:

Loss of revenue	$800
Collection cost	
Equipment	1,080
Labor	3,600
Disposal cost (sanitary fill)	600
Total annual cost	$6,080

The city's disposal site would be filled more rapidly as the result of the added load.

We of course wish to do our part in any necessary public health program but urge caution before adopting any drastic change in present methods of garbage disposal.

Sincerely yours,

RUSSELL W. RINK
City Manager

CITY OF PASADENA

December 3, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Subject: Proposed Legislation to Prohibit the Feeding of Raw Garbage to Hogs, or Require Before Any Garbage Is Used for Livestock, It Must Be Cooked.

The City of Pasadena is seriously concerned over proposed legislation, which, if enacted into law, would prohibit the feeding of raw garbage to hogs, or require that before any garbage is used for feed for livestock it must be cooked.

The City of Pasadena at the present time collects by city personnel and equipment approximately 16,500 tons of garbage annually, all of which is required by ordinance to be wrapped, except approximately 5 percent of the total garbage which is swill collected from markets, hotels and restaurants, which is unwrapped.

All garbage is delivered to a central transfer station where it is delivered to a contractor who hauls it away in his vehicles for the feeding of hogs.

Three alternate methods of disposing of garbage if legislation prohibited the feeding of garbage to hogs have been given consideration in the City of Pasadena; namely, incineration, sanitary land fill and grinding and discharge of the garbage into the sanitary sewer system.

The present municipal incinerator is not of the type or capacity to incinerate garbage, and its conversion for this use is not feasible. It was designed for and is presently operated in the incineration of combustible rubbish on a schedule of approximately 72 hours per week. An entirely new incinerator would be required to provide for the incineration of garbage. The cost of such an incinerator is estimated to be approximately one-half million dollars.

There are no suitable sites available, either within the city limits of Pasadena or within a reasonable hauling distance therefrom, for a sanitary landfill of sufficient capacity to provide for present and future requirements of the City of Pasadena. The most feasible method of disposing of garbage, if legislation prohibited the feeding of garbage to hogs, appears to be that of installing municipal garbage grinders at the city's present transfer station and discharging it after grinding into the sanitary sewer system.

The City of Pasadena has a contract at the present time for the hauling away and disposal of garbage which calls for a payment of $500 per month until the price of pork reaches 26 cents per pound at which time the city would derive a small revenue of approximately 20 cents per ton. The contract expires on April 30, 1957, with the right of renewal for an additional five years by mutual consent.

Legislation such as is proposed, would probably automatically terminate the present contract although there is no clause in the contract covering this eventuality.

It is estimated that the cost to the City of Pasadena would be approximately $100,000 to provide the necessary facilities for grinding garbage, including the installation of grinders, motors, discharge bins, alterations to the existing plant to provide dumping facilities, etc., reconstruction of the Pasadena sewer system and Pasadena's contemplated share of the cost of expanding the county sanitation district outfall and treatment plant.

The estimated salaries of operating personnel and the operating and maintenance cost of the required grinding facility, including depreciation and interest on the investment, is estimated to be approximately $2,000 per month or $24,000 per annum.

The chief engineer of the county sanitation district has advised the City of Pasadena that if garbage were to be ground and discharged in the county sanitation district's sewer system, the garbage would have to be unwrapped to reduce the volume of sewage treated and to prevent a loss in revenue in the sale of fertilizer. This would require revision of the present ordinance of the City of Pasadena which requires garbage to be wrapped.

It is anticipated that the citizens of Pasadena, as well as the governing body, the Board of Directors of the City of Pasadena, would be strenuously opposed to the discontinuance of the wrapping of garbage, since unwrapped garbage is generally recognized as causing a serious nuisance, including objectionable odors, attraction of flies, maggots and other undesirable insects and similar unsanitary and unhealthy conditions.

The City of Pasadena wishes to be placed on record as being opposed to any legislation such as that proposed, which will prohibit the feeding of raw garbage to hogs or require that before any garbage is used for feed for livestock it must be cooked, since such legislation would very materially increase the cost of the disposal of garbage to the City of Pasadena.

Very truly yours,

Don C. McMillan
City Manager
City of Pasadena

CITY OF POMONA

December 3, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
State Capitol Building, Sacramento, California

Subject: Proposed legislation affecting feeding of raw garbage to hogs

Dear Senator Hatfield: The City of Pomona is vitally interested in any and all legislation which has for its purpose the protection of the health and safety and welfare of the citizens of the City of Pomona and the State of California. Thereby, we are interested in your committee's study pertaining to the drafting of legislation controlling the feeding of garbage to hogs. In order that we may help your committee, I am setting down some items of information which may be of assistance to you in understanding the effect prohibitive legislation might have on the City of Pomona.

Presently the City of Pomona collects with city forces and disposes of approximately 3,100 tons of garbage per year by sale to a private hog rancher whose ranch is located immediately adjacent to the southern boundary of the City of Pomona. The city, in return, receives an annual revenue on a tonnage basis which amounted to approximately $2,600 during 1951-52. Should any legislation prohibiting the disposal of raw garbage become *immediately* effective it would work a hardship on the City of Pomona for the following reasons:

1. The City of Pomona would be forced to cancel a valid contract with the present purchaser of garbage which will not expire until 1954. There is such a clause in our present contract.
2. Certain ordinances would have to be prepared, and a program of education undertaken with the householder on wrapping garbage for collection and disposal at our municipal incinerator.
3. Our incinerator, presently burning an average of 45 tons of combustibles per day, would have to increase daily capacity by nearly 15 tons, adding weight of wrappings. This would result in an estimated increase of 30 percent in capacity and be reflected in operation costs amounting to almost $11,000 per year, including the loss of revenue from sale of garbage mentioned earlier.

In anticipation that, eventually, legislation would be written to prohibit the feeding of garbage to hogs, the City of Pomona has taken the definite steps listed below toward alternative methods of handling garbage disposal problems.

1. We have constructed a modern incinerator capable of burning garbage, along with other combusibles, at a rate of 224 tons per 24 hours.
2. We have writen into the plumbing code the requirement that all new residential construction provide garbage grinders.
3. We have adopted a master sewer plan to allow for capacities for garbage disposal via the sewer system throughout the city.

It is felt that legislation which would prohibit our continued disposal of garbage by feeding to hogs would work a hardship on the City of Pomona if sufficient time were not allowed for the necessary adjustments to be made. We have the basic facilities, but need time to make changes in policies and operations. We are well aware that the legislative approach is the answer for the protection of the health and welfare of the people, and offer the above information in the hope it might assist you in drafting sound legislation which will be workable throughout the State.

Sincerely yours,

F. W. Sharp
Administrative Officer

CITY OF RIALTO

December 4, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: With reference to the proposed legislation to prohibit the feeding of garbage to hogs, or require that before any garbage is used for feed for livestock it must be cooked. Our council discussed this at their last meeting and directed me to convey to you the result of their discussion.

While we feel that eventually this type of legislation will become a part of our state laws, yet we believe that serious and careful study and consideration should be given to the direct effect it would have to the smaller cities in the State if such a law were passed too quickly without allowing time for the smaller communities to so arrange their affairs as to be in position to meet all the requirements of the law. No doubt there are many small communities situated just as we are, not large enough to have the funds to install a garbage incinerator and also without a large enough piece of property to use a back-fill method of disposing of the garbage. At the present time we dispose of our garbage to a hog farm, and if this method of disposal were to be suddenly shut off it would most certainly create a serious situation for us or any other small community which do not have the reserve funds to meet a situation such as this would make.

We sincerely trust that your committee in making a study of this problem will seriously consider the effect it will have on the small community.

Thanking you for your consideration, we are,

Yours sincerely,

Merritt Cornell
City Clerk

CITY OF RIVERSIDE

November 28, 1952.

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR SIR: The City of Riverside respectfully requests your committee to take no action without first gaining majority support of all state cities in eliminating garbage feeding to hogs at properly conducted ranches.

The city presently takes care of all its domestic garbage and rubbish by very successful cut and fill method of disposal. However, commercial (hotel and restaurant) swill is contracted to a private hog feeder who also contracts with several other neighboring cities. Any termination pursuant to state legislation would seriously affect this area until such a time as some cooperative method might be worked out for joint disposal of commercial garbage.

This city produces about four (4) tons daily of hotel and restaurant feedable garbage which is collected by one contractor under city control. The city's present sewage disposal plant, while modern in every respect and thought to be ample for some years, is already nearing capacity due to the continuing unexpected growth of population. Any additional loading of the plant through introduction of commercial garbage would be quite impossible.

The city is now receiving from the commercial contractor one hundred fifty dollars ($150) per month net. If the city had to do this work there would be an out of pocket cost of not less than eight hundred dollars ($800), which would mean approximately one thousand dollars ($1,000) net added cost to our citizens.

The City of Riverside is definitely not in favor of any additional costs being forced upon us at this time, and further does not desire to increase its municipal services to the detriment of private industry.

Yours very truly,

W. C. EVANS,
Mayor of the City of Riverside.

CITY OF SACRAMENTO

January 14, 1953

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

DEAR SIR: The City of Sacramento is very pleased to be afforded the opportunity to express its views on the report made by your honorable committee on August 8th, 1952 to the Senate and Assembly of the State Legislature dealing with the subject of vesicular exanthema of swine, the report suggesting that such disease be controlled by the legislative prohibition of feeding of uncooked garbage to swine.

The City of Sacramento collects and disposes of approximately 40,000 tons of residential garbage annually by fill and cover method. It also has a contract with the Sacramento Livestock Company for the sale of all commercial garbage produced by hotels, restaurants, and institutions, approximately 3,000 tons annually used as hog feed by the contractor. The revenue received from the resale of commercial garbage amounts to approximately $12,000 annually.

This contractor does his own collecting and hauling. There is no provision in the contract that the contractor shall be released from his contract. If the state enacted any legislation prohibiting the feeding of raw garbage to swine however the contract made with the Sacramento Livestock Company will expire before this legislation if passed would become effective. I don't believe the contractor would be interested in renewing this contract as he stated that the garbage, after being recooked, would have no value as hog food.

This legislation if passed would seriously affect the established economy of the City of Sacramento to require the abandonment of a practice which has economic advantages which permits the conservation of valuable waste food materials.

If the state enacts this legislation, it would increase the cost of garbage collection in the City of Sacramento approximately $20,000 annually.

The City of Sacramento recommends that there be no mandatory legislation until there is definite proof that raw garbage feeding is the cause of vesicular exanthema. Also recommend that adequate appropriation be made to support thorough research program, both as to the whole problem of garbage disposal and hog diseases.

Very truly yours,

J. E. CRONAN, Superintendent
Waste Removal

Approved by:
BARTLEY W. CAVANAUGH
City Manager

CITY OF SAN BUENAVENTURA

December 5, 1952

HON. GEORGE J. HATFIELD, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
Sacramento, California

DEAR SENATOR HATFIELD: We appreciate the opportunity afforded the cities to present their problems relative to proposed legislation to prohibit the feeding of garbage to hogs. Our approach, of necessity, will be confined primarily to the economics of this legislation.

Previous hearings on this subject have indicated considerable speculation as to the need of this type of legislation. It is our opinion that research is in order to thoroughly explore the entire proposition. The study should be sufficiently broad to embrace the question of whether or not vesicular exanthema is transmittible to humans, possible quarantine of ranches where disease is found, and alternate methods of disposal.

There is no question but what the enactment of this legislation will pose a financial problem for practically every city in California, and in many cases it may necessitate a bond issue. A few cities have already reached their bonding capacity.

Ventura is a relatively small city, with a population of approximately 20,000, and at the present time it costs the city $4,700 per year for the collection of garbage. We have a contract with a hog rancher, who collects in the business district every day and twice a week in the residential area.

We doubt very much if a plan could be worked out within a reasonable distance from the city whereby we could adopt the "fill and cover" method. Practically all the land is being used for citrus, and I doubt very much whether the ranchers would permit this method of disposal. In talking with the hog ranchers, there seems to be a general opinion that the cooking of the garbage is impracticable, in view of the fact that the garbage contains citrus peelings, paper, and other products that would destroy the value of the otherwise edible garbage. If a central grinding process were installed and the garbage run through the sewage plant, it would necessitate enlargement of the sewage plant.

A few cities are now experimenting with incineration of garbage, with not too much enthusiasm. Assuming that this process is satisfactory, this would necessitate construction of an incinerator costing between $350,000 and $500,000.

In presenting the economic problems that would confront the cities of California we are not trying to balance dollars with the well-being of our citizens. We are merely asking that the solution should not be based on hasty action, but rather on a thorough study of the entire subject.

Very truly yours,

LAWRENCE E. OLSON
City Manager

CITY OF SAN DIEGO

December 1, 1952

The Joint Committee on Agriculture
and Livestock Problems
California State Legislature
Sacramento, California

GENTLEMEN: The purpose of this letter is to advise you of the position of the City of San Diego, relative to the proposed legislation which would prohibit the feeding of raw garbage to swine.

The estimated total amount of garbage collected annually in the City of San Diego is 44,000 tons (this is wet garbage, including swill). This raw garbage is disposed of by feeding to hogs. The national average is 0.2 to 0.9 of a pound of garbage per capita per day. San Diego's figure is approximately 0.5 pound per person per day. Currently, the City of San Diego receives approximately $25,000 per year from the sale of raw garbage to hog feeders.

At the present time, approximately 60 percent of the city's garbage is picked up by city forces. The balance being picked up by private haulers who are hauling on a permit, not on a contract basis. If the proposed legislation were enacted, these private haulers would immediately cease their operations. There are now 28 private garbage collectors and haulers operating within the City of San Diego. These people collect approximately 24,000 tons of garbage annually, most of which is swill. This garbage is fed to approximately 15,000 hogs.

We are not in any position to state, at this time, what alternate method of garbage disposal might be used should this legislation be enacted, because sufficient facts have not yet been developed which indicate the course which would be most feasible and economical for us to follow. Also, as a result of the lack of sufficient facts upon which to base a decision as to the best alternate method to use, we are unable to estimate the amount of time required to convert to any alternate methods.

Inasmuch as we are not in a position to decide the alternate method that might be used in the event of the passage of this legislation, we are not able to advise you of the estimated annual cost of such alternate method.

Also, inasmuch as we do not know what alternate method might be used, we are unable to advise you as to the estimated change in our annual cost of garbage disposal which would occur if such legislation were enacted. However, we do know that if the private haulers ceased operations, our annual *collection* costs would increase by approximately $225,000 for the first year and dropping to approximately $185,000 per year for every year thereafter. Any increased disposal costs would, of course, be in addition to those amounts.

In view of the above facts the City of San Diego is opposed to the enactment of the proposed legislation but would be in favor of some legislation which would provide funds for further technical study and a report by the University of California on the control and elimination of vesicular exanthema and on the general problem of garbage disposal. This report should show the annual cost per ton for garbage disposal and the revenues, if any, using the various possible methods of disposal such as feeding to hogs, composting, and disposal in sanitary fill sites.

Respectfully,

O. W. Campbell
City Manager

CITY OF SAN FERNANDO

November 3, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Gentlemen: The City of San Fernando has received notification that your committee will conduct a hearing in the City of Los Angeles December 9, 1952, on proposed legislation prohibiting the feeding of raw garbage to livestock. It was indicated that this proposed legislation would create controls over vesicular exanthema suspected of being transmitted to swine through the medium of feeding of raw garbage. This proposal is of particular importance to the City of San Fernando and it is our intention that you be appraised of the problems that such legislation would create and of its possible economical effects upon this city before final determination of this matter by the interim committee.

The City of San Fernando (population 15,000), consisting of three square miles, is a suburban residential community composed primarily of single family homes. It is located in the San Fernando Valley 22 miles northerly of the civic center of the City of Los Angeles and is completely surrounded by the City of Los Angeles. Land use in San Fernando and in the surrounding area is primarily residential.

Garbage disposal service has been performed for the city through private contract for the past 20 years and at all times has been conducted in compliance with city and county health regulations. This service has been performed during the past five years by Mr. Robert J. Hohn of 9019 Charloma Drive, Downey, California, who is also presently collecting garbage from Firestone Park, a county district, and the City of Long Beach, and transports garbage to his ranch at Saugus, California, to be fed raw to some 3,000 head of hogs. Mr. Hohn has been collecting and using garbage as feed for the past 30 years and states that it has proven to be valuable for that purpose, producing 50 pounds of pork per ton of garbage fed. He markets livestock produced at the Saugus ranch at the Los Angeles Union Stock Yards and all animals sold are subject to government inspection. Mr. Hohn values the 1,500 tons of garbage taken annually from the City of San Fernando at $3,000 ($2 per ton). The city pays $390 a month to help defray the cost of operating a truck and employing two men in collecting the garbage from the 4,000 residences of the city twice per week. Mr. Hohn stated that providing such legislation is enacted requiring the cooking of garbage before feeding to livestock that it will reduce its value as feed and that it would require twice the amount of garbage to produce the same amount of pork, thus materially reducing the value of garbage to the pork farmer. This reduction in value would undoubtedly be reflected in the increased cost of collection and disposing of garbage and could quite possibly prove economically prohibitive for the private contractor to collect garbage for this purpose.

Providing the City of San Fernando was prohibited from disposing of garbage through private contract there are possible alternative methods of disposition of this waste matter which have received our consideration. They are cut and fill, incineration, garbage disposal units in residences, and compost pits. After considering each of these possible methods of disposing of garbage as they would apply to the City of San Fernando, the following conclusions have been reached.

Cut and Fill—Due to the limited area of the City of San Fernando and land use, a site is not available even for a short term cut and fill operation. This method of disposing of garbage would undoubtedly be prohibited in the area of the City of Los Angeles and by the County of Los Angeles due to existing land use and health regulations. It is the understanding of the Engineer of the City of San Fernando that special permits are necessary for such operations from both the city and county and that such permits are not being approved. Providing land and permits could be obtained it is estimated that the cost of collection and disposing of the garbage of this city would be in excess of $30,000 a year for the acquisition of the necessary site, equipment and personnel to cut and fill, equipment and personnel to collect and transport the garbage to the site.

Incineration—Mr. Harry E. Waite, City Engineer, advises that the City of San Fernando would first have to obtain a permit from the County of Los Angeles for such an installation and that providing the permit was received that the acquisition of land and cost of construction of a plant would amount to a considerable investment for the City of San Fernando. The actual disposition of garbage by incineration has proven to be expensive in that it requires a drying and burning operation. In addition to the initial investment for the plant, the city would have to collect the garbage from the residences and deliver it to the incinerator. The estimated cost of this operation would be in excess of the cut and fill method and would undoubtedly be economically prohibitive for a city of the size of San Fernando.

Garbage Disposal Units—At the present time only 80 percent of the residences of the City of San Fernando are connected to sewers. Providing such a plan was followed, there would remain the problem of disposing of the garbage of the remaining 20 percent of the residences. The City of San Fernando is connected with the Hyperion Outfall Sewer of the City of Los Angeles and there would be the question of whether or not the Hyperion sewer could handle the increased amount of flow created by the garbage produced in the area served by the sewer system. In addition there would be the problems of installation of disposal units in the older residences where plumbing facilities would be inadequate for such installations. This would create a financial burden upon residences not now having disposal units and would create the sanitation problem of disposing of garbage from residences not connected to sewers.

Compost Pits—Our city engineer advises that this type of operation would create a problem similar to that of the cut and fill method; that there are no available sites for this operation in the City of San Fernando nor in the City of Los Angeles; that necessary permits could not be obtained; and that the cost of this operation due to the necessary handling of the waste matter would be in excess of that of the cut and fill method.

It can be concluded after consideration of the possible alternatives that the present method of disposing of garbage through private contract for livestock feed is the most economical method (annual cost, $4,680) for the City of San Fernando. The only remaining alternative method possible to this city would be the installation of garbage disposal units. However, the matters of installation and lack of sewage facilities in 20 percent of the residences would create a serious problem. For reasons set forth above cut and fill, incineration and compost pit methods are not acceptable to the City of San Fernando because of land use, excessive cost and existing city and county health regulations, etc.

The City of San Fernando strongly urges that your committee not take hasty action prohibiting the feeding of raw garbage to livestock and that study and research be undertaken to determine practical methods of meeting the problem.

Yours very truly,

D. P. Loomis, Mayor

CITY OF SAN JOSE

January 27, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
State Capitol, Sacramento, California

Dear Mr. Hatfield: Your committee is considering legislation that would prohibit the feeding of raw garbage to hogs, or require that such garbage be cooked prior to feeding it to livestock. This letter gives some indication of the effect of such legislation upon San Jose.

In San Jose, household garbage is not segregated from other refuse in order that it may be fed to hogs. Therefore, the economic implications of such legislation are relatively limited here, as compared with many other California communities.

San Jose has one licensed swill collector, Mr. A. Bandoni, of 420 N. First Street. Mr. Bandoni collects about 150 tons of restaurant swill per month from San Jose, and about half as much additional from outside San Jose (including some business in Alameda and Camp Parks). In addition to restaurant swill, he collects from three to four tons daily of greens from grocery and food stores.

All of this is fed to hogs at a ranch about two miles north of Milpitas. Mr. Bandoni states that there is no electrical service at the ranch, and that it would cost about $2,000 to bring in such service. He does not believe that the food store greens would have to be cooked. If the proposed legislation were adopted, he would have to pay restaurants substantially less than the $700 per month he is now paying for their swill.

Mr. Bandoni states that naturally he is opposed to such legislation, at least until such time that there is absolute proof that the feeding of raw garbage to hogs is the source of diseases in swine.

Sincerely yours,

A. P. Hamann
City Manager

CITY OF SAN LUIS OBISPO

November 25, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: With reference to the hearing of the Joint Legislative Committee on Agriculture and Livestock Problems to be held at 10 o'clock a.m. Tuesday, December 9, 1952, in the State Building in Los Angeles, the following represents my feelings as Mayor of the City of San Luis Obispo, California.

At the present time the City of San Luis Obispo contracts with a private agency for the collection of garbage, such agreement to expire in 1960. The city receives 2½ percent of gross receipts on garbage plus 10 percent on salvage. Last year the city's share amounted to $1,665.32. After looking over the contract, it is my opinion that the proposed legislation would have no immediate effect on the rights or revenue of the city under the present contract. However, in the event that we later decided to engage more directly in the garbage business we would be affected.

Therefore, we must add our voices to those of other California cities in opposing this proposed legislation.

Respectfully yours,

Timothy I. O'Reilly
Mayor

CITY OF SANTA MONICA

December 5, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: The City of Santa Monica wishes to protest the proposed legislation to prohibit the feeding of raw garbage to hogs on the grounds that it is not based on established facts as to the causes of the spreading of vesicular exanthema and that there may be a more practicable approach to the problem in event it is determined conclusively that this disease can be spread in this manner.

This city administration concurs in the views outlined to your committee by the representative from the City of Los Angeles.

It respectfully is suggested that your committee investigate fully the feasibility of federal regulation under the heading of "Interstate Commerce." It may be found practicable to require all raw garbage transported from one state to another to be cooked before feeding to hogs. While no figures are available, it is believed it will be found that the tons of garbage requiring cooking, under such federal regulation, would be much less than the total tons of raw garbage now fed to hogs in the State of California which would require cooking under the proposed new legislation.

This city now sells 10,000 tons per year of raw garbage for hog feed for $16,000. If legislation should prohibit this practice, Santa Monica likely would be forced to incinerate garbage for an additional cost of $30,000 per year which would result in a net loss in revenue of approximately $46,000 per year.

Yours very truly,

Randall M. Dorton
City Manager

CITY OF SANTA PAULA

December 8, 1952

State Senator Hatfield, *Chairman*
Joint Committee on Agriculture and
Livestock Problems
State Building, Los Angeles, California

Subject: Legislation Controlling Feeding of Raw Garbage to Hogs

Dear Senator Hatfield: Numerous cities in the State of California have been informed of a proposed bill which will prohibit the feeding of raw garbage to hogs. Each city will be definitely effected by any legislation controlling this particular phase of garbage disposal. The City of Santa Paula now contracts for the sum of $200 a month with a private contractor to collect all garbage in the residential and commercial area. The only reason, it appears, that the city has been given such a low rate for the collection of said garbage is the advantage that it can be utilized as hog feed at the collector's ranch. This cost, figured out mathematically, runs less than 5 cents per home. The garbage is collected in our commercial area daily and in the residential area from two to three times a week. If this legislation is adopted and the cities are forced to resort to other methods of collecting and disposing of their raw garbage, we feel it will create a serious hardship and an exorbitant added expense. In the area surrounding Santa Paula, we do not have vacant land that can be used for a sanitary dump for the disposal of raw garbage. We will be forced to provide an incinerator, which will be a tremendous expense to construct and operate. Some of the figures that were presented to us from cities that have developed this type of disposal are out of the reach of a city of the size of Santa Paula. The city would also be forced to provide collecting equipment, which includes trucks and additional personnel to administrate this operation.

It definitely would be impossible to show you the tremendous difference in cost if this legislation is enacted. The cities will undoubtedly have to resort to state aid if the present means of garbage disposal is forcibly discontinued. It was felt advisable that your committee recommend that more research and studies be made by the University of California and additional funds be appropriated to definitely establish whether or not vesicular exanthema (related to the hoof-and-mouth disease in hogs) is transmittible to humans or bovines. There appears to be a difference of opinion among the veterinarians and other qualified persons. It is sincerely felt that this matter should definitely be cleared beyond any doubt. If such a disease is spread by raw garbage, then the matter should be placed under control but, until that time, we believe you should exhaust all possible means, through study and research, to prove this fact before creating serious hardship on cities to dispose of their raw garbage.

We hope your committee will review our letters with great earnestness and realize the great hardships this proposed legislation will cause. I remain

Yours truly,

George Aiassa
City Administrator

CITY OF SIGNAL HILL

December 4, 1952

To Honorable Geo. J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: The meeting of December 9th of the Joint Legislative Committee on Agriculture and Livestock Problems has come to my attention and I wish to state my views.

On this particular problem, the City of Signal Hill has no problem as we operate a municipal incinerator which burns all trash and garbage and I assure you it is very satisfactory. But I do oppose any hasty action to prohibit the feeding of garbage or to require its cooking until study and research are undertaken to meet the problems. It would work a hardship on numerous cities and as you know, we all have enough problems now.

Yours sincerely,

Lloyd J. Tomlin
Mayor

CITY OF SOUTH PASADENA

December 3, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
440 Statler Center, Los Angeles 17, California

Dear Sir: The City of South Pasadena is a residential community, having a population of nearly 18,000 persons, located about eight miles north and east of the business center of the City of Los Angeles.

Approximately 2,000 tons of raw garbage is collected each year by city departments and is deposited in contractor's equipment at a transfer depot located within the City of South Pasadena. This raw garbage is removed daily by the contractor and hauled nearly 20 miles to his hog ranch for feeding purposes.

If the feeding of raw garbage were stopped immediately by state legislation, a very serious health problem would result as it would be impossible, within a tightly built up residential area, such as South Pasadena, to provide facilities for processing raw garbage by any of the methods which are now available. Cut and cover areas are not available in the metropolitan Los Angeles area and sites for this type dump are prohibited in the entire Southern California area. A far more serious health hazard would be created under the circumstances than the continued feeding of the raw garbage to hogs.

Although during the past, the sale of raw garbage by the city to its disposal contractor has returned rather high revenue to the city, contracts have been reduced radically during the year to the point where the city receives approximately $2,000 per year revenue on the sale of garbage delivered at our transfer pit.

Should legislation requiring the processing of raw garbage be enacted, the present contract with the hog feeder would have to be terminated and new contracts negotiated. Since it would be impossible to process garbage within the City of South Pasadena, any proposed contract would require the garbage feeder to set up a plant to do the processing at his ranch. A plant of this type and character would be a questionable factor as the entire Los Angeles area is covered by protective zoning and a processing method of this kind would be outlawed in the area. Any future contract by the garbage feeder would reflect processing costs and location changes to an extent where the city would be required to pay excessive costs for the disposal of raw garbage. At the present time, there are so many variable conditions that it would be impossible to make an estimate of the cost of alternate disposal methods. Were the cost the only factor, the city could accept the problem without too much concern, but we are faced with the practical impossibility of any of the present methods of disposal.

I wish to urge that the committee consider the unreasonable condition that would be a result of rushing impossible legislation, and as an alternate, authorize the setting up of funds that will guarantee the proper research which will lead to a practical, sanitary and economic reduction of raw garbage.

Yours very truly,

Frank H. Clough
City Manager

CITY OF STOCKON

January 7, 1953

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems
State Capitol, Sacramento, California

Dear Sir: I am in receipt of your invitation through the League of California Cities to present the views and recommendations of the City of Stockton to you and your Committee on Agriculture and Livestock Problems.

One of the principal problems confronting your committee and the municipalities in the State of California is the proposed legislation to prohibit the feeding of raw garbage to hogs, or require that before any garbage is used for feed for livestock such garbage must be cooked. This proposal is based on creating legislative control of vesicular exanthema (related to the hoof and mouth disease in hogs) as some suspect that the feeding of raw garbage is the medium through which this disease is spread to swine.

The City of Stockton has practiced the disposal of municipal raw garbage to hog feeders for feeding swine for quite a few years. Annually approximately 35,000 tons of garbage is collected and fed to hogs. Following this the garbage uneaten by the swine is disposed of by the sanitary fill method. The City of Stockton enjoys an annual net revenue of approximately $6,000 a year. If we are forced to abandon our practice of contracting with hog feeders we will necessarily lose the $6,000 annual revenue.

The $6,000 revenue per year is not a stupendous figure. However, in this day of rising cost and the extra burden placed upon municipalities due to the fringe area problem and general population growth, the financing of the city becomes increasingly difficult. It is with this thought in mind that we urgently request that any legislation which will restrict or diminish the revenues to municipalities be very carefully considered before being enacted.

Certainly the City of Stockton does not wish to continue any method or practice which has proven to be detrimental to the welfare of the Country as a whole. However, we are hesitant to abandon a practice which has certain economic advantages and which permit the conservation of valuable food materials.

As a by-product of the elimination of garbage refuse as a feed for hogs it is reasonable to assume that the taxpayer would be confronted with corresponding rise in prices for pork. This would penalize the citizen in two ways: first, the loss of revenue from municipal contracts with hog feeders; secondly, the increase cost for food.

With these thoughts in mind, it is sincerely requested that your honorable committee not recommend legislation prohibiting the feeding of raw or uncooked garbage to swine until such feeding is definitely shown to be the cause of vesicular exanthema.

Instead of your committee recommending this legislation, the City of Stockton would appreciate your authorization of an adequate appropriation to support a thorough research program by the University of California and other agencies to determine if vesicular exanthema in swine is caused by the presently alleged method.

Very truly yours,

R. C. McGee
City Manager

CITY OF TORRANCE

December 1, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

Dear Sir: The City Council of the City of Torrance is unanimously opposed to the passage of legislation which would prohibit the feeding of raw garbage to swine, until some satisfactory method of disposing of said garbage has been developed.

It is estimated that over 3,500 tons of garbage are collected annually in our city. This amount will be substantially increased each year due to the rapid population growth of our community.

Present method of disposal is by feeding the raw garbage to hogs on a ranch located within our city.

Legislation prohibiting the feeding of raw garbage to hogs would leave our city no practical or economical method of disposal. We lack information and experience on any other method of disposal and believe that more experimental and research work should be carried on to determine a practical method of disposal. If an alternate method is really necessary, the research program should be expedited.

Our city currently contracts for the collection and disposal of all garbage and noncombustible refuse with a local firm at the very favorable cost of 28 cents per month for each dwelling or commercial establishment. The contractor feeds the garbage at a hog ranch located within the city. If this convenient feeding is prohibited, it is estimated that the annual cost of collection to the city would be increased by at least $2 per ton, or $7,000 annually.

Passage of the proposed legislation might result in the termination of our garbage and refuse collection contract.

The additional cost to the contractor in disposing of the garbage and the loss of the feed value of the garbage would easily overweigh the value of his bond for faithful performance, so that forfeiture of the contract would be the most economical way out for him.

It is difficult to estimate the additional cost to the city if raw garbage feeding is prohibited. Our present dump site for disposing of noncombustible and combustible refuse by cut-and-fill methods was approved with the provision that garbage disposal would not be permitted at the site. There are no other sites suitable for such disposal. A long haul to a remote section of the county would become necessary. Using a nominal figure of $3 per ton for transportation charges and $2 per ton for disposal charges, the additional cost to the city would be $5 per ton for 3,500 tons, or $17,500 per year.

The total additional cost to the city for disposal at the current rate would be a minimum of $2 per ton, estimated credit on present contract, plus $5 per ton for transportation and disposal, a total of $7 per ton for 3,500 tons, or $24,000 per year. This amount would be greatly increased if the very favorable contract for collection and disposal was terminated or could not be renewed.

In conclusion it should be stated that legislation prohibiting the feeding of raw garbage to hogs would create a financial burden on the City of Torrance and might result in a serious health hazard before some satisfactory method of disposal could be determined and put into effect. A resource in the form of raw garbage for hog feeding would be lost to the community.

We hope that your committee will carefully consider the effects of the proposed legislation on the citizens of California and will recommend its defeat.

Yours very truly,

Geo. W. Stevens
City Manager

CITY OF UPLAND

December 5, 1952

Hon. George J. Hatfield, *Chairman*
Farm Legislative Interim Committee on
Agriculture and Livestock Problems
Sacramento, California

Dear Sir: The City of Upland is now selling its garbage to a hog raiser who feeds the garbage to his hogs. The total amount of garbage collected annually in our city is approximately 700 tons per year. If a bill is passed by the Legislature prohibiting the feeding of raw garbage to hogs, it will mean that our present contract with the hog raiser will be canceled for they have no means of cooking the garbage and claim that the cooked garbage would be worthless for hog feed. Consequently the city would have to find another method of disposing of garbage.

Probably the cut and fill method would require the least amount of capital investment. However, the cost to the city would depend largely upon the length of haul since there is no suitable land for this purpose near this city. At the present time the city makes a profit of $2.25 a ton for the garbage so that a change in the method of disposal would not only require a large expenditure for the disposal but would also eliminate any profit that the city is making at the present time.

We are opposed to a bill which would prohibit the feeding of garbage to hogs until after a more thorough study is made.

Sincerely,

R. G. Manley
City Manager

CITY OF VERNON

December 4, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems

My Dear Senator Hatfield: We have been informed that at 10 a.m. on Tuesday, December 9, your committee will hold a hearing on proposed legislation to prohibit the feeding of raw garbage to hogs or, in the alternative, to require that, before any garbage is used for feed for livestock, it must be cooked.

The City of Vernon as such has no garbage collection department or facilities, and this service is performed for our citizens and taxpayers by private business, which is allowed to compete without any particular control being exercised by the city. However, by reason of the matters set forth hereafter, the city feels that the proposed legislation would have an adverse effect.

We estimate the total amount of garbage collected annually in our city at approximately 1,200 tons; and, as far as we have been able to determine, this garbage is, without exception, disposed of by feeding the raw garbage to hogs.

We are unable at this time to state what alternative method of disposal would be used if the feeding of raw garbage were prohibited.

Since the city has no contracts with garbage collectors, we do not realize any income from the garbage collection operation. I am informed that, if the feeding of garbage were absolutely prohibited or the collectors were required to cook the garbage before feeding it, it would have no value and would in fact be a liability. Therefore, if the proposed legislation were enacted, it seems clear that the city would be required to undertake an expensive substitute method of disposal.

Adoption of the proposed legislation would terminate the operations of our privately operated garbage collection services within the City of Vernon.

We are unable to estimate at this time the annual cost of an alternate method of disposal. We have no convenient location for fill and cover or sanitary fill operations, and recent difficulties of other cities in locating such sites which do not offend the water pollution control authorities indicate a very serious difficulty in locating such sites.

We are not in a position to estimate the increase in annual cost for garbage disposal to the city because of the foregoing factors. However, since our private garbage collection services do not charge for picking up garbage within the city (apparently realizing sufficient profit from the feeding operation to offset the cost of collection), any increased cost would be absorbed by our taxpayers and citizens, directly or indirectly.

In this connection it might be pertinent to remark that not only would our garbage collection problem be accentuated, but the disposal of trash and rubbish would also become a problem. This is so because our garbage collectors for a nominal fee also collect trash and rubbish at the same time they make pick-ups of garbage. It is entirely possible, therefore, that neither the cost of trash and rubbish disposal would be increased or that by reason of the loss of revenue from the hog feeding operations the operators presently collecting trash and rubbish as an incident to garbage collection would terminate that activity as well.

Yours very truly,

John B. Moore
Administrative Assistant
to the City Council

CITY OF WHITTIER

December 2, 1952

Hon. George J. Hatfield, *Chairman*
Legislative Interim Committee on
Agriculture and Livestock Problems,
League of California Cities,
440 Statler Center, Los Angeles 17, California

Dear Sir: As one of the fastest growing communities in the Los Angeles metropolitan area the City of Whittier is vitally concerned with the problem of vesicular exanthema as it may relate to the feeding of raw garbage to swine.

We recognize the seriousness of the problem and wish to express a common interest in the solution of a state-wide problem that affects the agricultural interests of the State of California but we feel that any precipitous legislative action that might result in a ban on the feeding of domestic garbage to hogs would create an acute problem for the citizens and taxpayers of Whittier.

At the present time the city disposes of, through a private contractor, approximately 2,200 tons of domestic garbage annually, this garbage in turn being sold by the private collector to a hog farm. Taking into consideration the salvage value of the garbage the city is called upon to budget $12,500 per year toward garbage collection costs. It is estimated that this cost would increase to approximately $65,000 or more per year for collection only. At the present time we have no means of determining what additional costs would be involved in the disposal of the garbage so collected as we have had no occasion or opportunity to study an alternate disposal method for the city.

We wish to state emphatically that we do not stand opposed to any program that would eventually benefit our agricultural interests as a whole but we do stand opposed to the proposition that the citizens of Whittier should be called upon, through heavy increases in garbage collection costs to subsidize the hog raising industry.

We therefore pray that the committee will give due consideration to a proposal involving adequate research designed to find proper methods to eradicate vesicular exanthema together with the research that will be necessary to solve the problem of an alternate method of garbage disposal in our community, should garbage feeding be outlawed.

It is our belief that such a program would require a minimum of four or more years to complete and would suggest that if a ban on the feeding of raw garbage is found necessary to the best interests of all concerned that we be given adequate time to work out the problem as it affects our city.

Respectfully submitted,

DEANE SEEGER
City Manager

APPENDIX NO. 11

THE HOG RANCH PROBLEM IN LOS ANGELES COUNTY

DEPARTMENT OF THE
COUNTY ENGINEER
COUNTY OF LOS ANGELES
CALIFORNIA

PD—HOG RANCHES

March 5, 1951

Honorable Board of Supervisors
501 Hall of Records
Los Angeles 12, California

GENTLEMEN: On *December 5, 1950*, your board discussed the problem of relocation of hog ranches and instructed this office to investigate the problem and compile information for discussion with the Committee of the Whole.

Accordingly, I have prepared the attached report which summarizes the existing situation, outlines possible solutions of the problem, and presents conclusions and recommendations for immediate and future action.

Your truly,

(Signed) C. E. ARNOLD
County Engineer and Surveyor

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1. GENERAL

The feeding of garbage to hogs has created one of the most difficult and complex problems confronting public officials of the Los Angeles Metropolitan Area. Unless adequate steps are taken immediately to solve this problem, the economy of the entire area may be adversely affected.

This report presents a summary of the existing situation, outlines possible solutions of the problem, and includes conclusions and recommendations for immediate and future action.

2. THE EXISTING SITUATION

At present, more than 1,200 tons of garbage are collected each day from residential districts of our cities and garbage disposal districts. Private collectors obtain an additional supply from restaurants, markets, food processing plants, and unincorporated communities which have no organized collection facilities. While no basis for accurate computation is available, it is estimated that these sources produce at least 500 tons per day, making a grand total of 1,700 tons per day produced from all sources.

A portion of the cost of collection of this garbage is realized by cities and garbage disposal districts, which receive from $1 to $5 per ton from the hog ranchers. The price paid varies with the quality of the garbage, the market price of the hogs, and the cost to the ranchers for transportation of the garbage from the source to the hog ranch.

Other factors also affect the sales price. For example, highest prices are paid for restaurant garbage, market refuse, and commercial garbage, which are high in food value and less subject to spoilage because of daily collection. Residential garbage also fluctuates in value due to differences in eating habits of various cities and communities and to differences in regulations governing the frequency of collection and methods of handling the garbage.

The collected garbage is transported to more than 40 hog ranches situated on the fringes of the metropolitan area. The attached tabulation lists 44 ranches and gives the source of garbage and approximate number of hogs which were being fed in 1949 when a factual survey was made by the County Engineer. At present, these ranches feed an average of more than 100,000 hogs and market more than 150,000 hogs each year.

EFFECT OF SAN BERNARDINO COUNTY ORDINANCE

The largest of these ranches is situated near Fontana in San Bernardino County. This ranch feeds an average of 55,000 hogs on garbage from the Central District of Los Angeles City.

San Bernardino County has enacted an ordinance which virtually prohibits the continued operation of garbage fed hog ranches in the southerly portion of the county. As a result, the Fontana Farms Company has sold their property and has advised the City of Los Angeles that the ranch will discontinue operations and no garbage will be accepted after September 1, 1951.

To date, the City of Los Angeles has been unable to find a new market for the garbage which has for many years been sold to this ranch. Private interests have canvassed available marginal lands in their efforts to establish a basis for obtaining the city contract. In most cases, such lands are too close to existing developed areas, or water necessary for sanitary operation cannot be obtained. In other cases, attempts have been made to secure zoning permits for ranch sites in remote locations. These attempts have met overwhelming opposition from adjacent property owners.

RANCHES MAY BE WIPED OUT

Unless a suitable location is obtained so that new operators can take over the city garbage contract promptly on September 1, 1951, it will be necessary for the city to construct facilities for disposal of this garbage into the public sewers, public dumps, or incinerators.

Cost of construction of facilities for disposal by any of these methods will be substantial and it is doubtful that return to hog ranching will follow initiation of any alternate method of disposal.

It is also probable that establishment of a new method of disposal of garbage from the central district of Los Angeles will set a pattern to be followed in the immediate future by other cities and communities of the metropolitan area, due to temporary status of other existing ranches.

Orange, Riverside, and Ventura Counties are said to favor adoption of ordinances similar to that of San Bernardino County. As a result, it seems only a matter of time until ranches in these counties are also eliminated. Likewise, many of the existing ranches in Los Angeles County are in a precarious situation and cannot permanently continue operation at their present locations.

BASIS OF OBJECTION TO HOG RANCHES

The principal objections to existing ranches are caused by:

One. Residential and commercial development of adjacent property.

Two. Odor nuisance caused primarily by failure to promptly remove garbage which has been rejected by the hogs. At present, garbage received at the hog ranch is dumped and spread on concrete slabs for consumption by the hogs. Hogs are particular of their diet and refuse to eat much of the material, which is trampled or otherwise spoiled. Consequently, the hogs consume an average of only 20 percent of the material placed before them. The rejected garbage must be promptly removed and buried or composted by the ranch owner. A major portion of the odor nuisance develops because of the lack of adequate equipment and disposal facilities for efficient handling of this material.

Three. Fly nuisance caused by lack of adequate permanent facilities for sanitary operation of the ranches, many of which are constructed on a temporary basis.

Four. Rodent nuisance at ranches which are inefficiently operated and which are not constructed on a permanent basis. Health Department inspectors state that this nuisance is completely absent from properly operated ranches.

Five. Water pollution or contamination hazards which are serious in certain areas where ranches are located adjacent to streams or upon coarse gravel formations above aquifers supplying domestic water.

ALTERNATE METHODS OF GARBAGE DISPOSAL

Considerable study has been given to the possibilities for disposal of garbage into public sewers, public dumps, or in public incinerators. It is generally agreed that disposal to the public sewer system would be the most desirable for reasons of sanitation and basic economy, but that a considerable capital expenditure will be required for construction of central garbage grinding stations and for the development of additional facilities for handling of increased solids at the sewage treatment plants. Also, the cost of operation of these facilities will be substantial.

EFFECT UPON CITIES AND COMMUNITIES

It is obvious that loss of income from sale of garbage would vary between $1 and $5 per ton. While detailed estimates are not available, it is also generally agreed that amortization of capital cost for grinding stations and additional facilities at sewage treatment plants would amount to at least $1 per ton and that cost of operation of such facilities would amount to at least $1 per ton.

In other words, costs of collection and disposal of garbage will rise at least $3 per ton if the hog ranches are eliminated, due to loss of income from sale of garbage, plus capital outlay and operations cost for disposal to sewers. Based upon present quantities of 1,700 tons per day, this would represent a total of $5,100 per day or $1,530,000 per year to be added to the taxes of the cities and communities affected, if the hog ranches are eliminated.

EFFECT UPON RELATED INDUSTRIES

Because of the necessity to construct central grinding stations and additional facilities at the sewage treatment plant, it appears that a policy decision must be made by Los Angeles City officials before May 1, 1951, with regard to disposal of garbage from the central district. If Los Angeles City decides to change its method of garbage disposal, it is generally believed that other cities and communities will follow suit and that a majority of the hog ranches will be quickly wiped out.

If this occurs, related industries such as slaughterhouses, meat processing and packaging plants, and by-products plants will be seriously affected. It is doubtful if such plants can compete with mid-western concerns if they are forced to ship hogs from mid-western farms.

POSSIBILITY FOR CONTINUED OPERATION OF HOG RANCHES

Continued operation of the hog ranches will require prompt action by interested public officials to provide:

(a) Zoning of suitable areas where ranches can be constructed and operated so as to eliminate any possibility of nuisance.

(b) Establishment of regulations which will insure construction of permanent facilities necessary for sanitary and efficient operation with a minimum of odor and a complete absence of nuisance. A hog ranch, if properly located and constructed on a permanent basis, can be just as clean and sanitary as a dairy farm. The hog ranch at the sheriff's Wayside Honor Farm at Castaic and other ranches where garbage is not fed demonstrate this fact.

(c) Research must be undertaken to investigate new methods of handling and feeding garbage which have proven successful elsewhere, and to determine whether or not such methods can be adapted to Los Angeles conditions.

ZONING OF MARGINAL LANDS

Efforts which have been made by private interests to obtain zoning variance of marginal lands for hog ranch operations have demonstrated the difficulty of obtaining suitable property and of meeting the objections of abutting property owners.

To be suitable for the purpose, the land selected should be remote from existing or proposed future development. A sufficiently large area (probably 4,000 acres of land as a minimum) should be zoned so as to allow for a buffer area between hog ranch operations and adjacent development. Land within three miles of the area zoned for hog ranching should be restricted to agricultural uses.

An adequate water supply must be available to insure sanitary and efficient operation of the ranches. If present feeding methods are continued and if a single area is zoned for the purpose, at least 1,000,000 gallons of water per day should be made available. The only possibility of a permanent supply of this quantity of water appears to be from the Owens River Aqueduct of the City of Los Angeles or the Metropolitan Water District Aqueduct. This fact definitely limits the lands which might be considered suitable for the purpose.

Areas chosen should be free from the possibility of water pollution or contamination hazards if ranching operations are conducted in accordance with regulations to be established.

The area should be readily accessible to garbage trucks or railroad cars in order to obtain efficient operation. Disposal of wastes is of primary importance as the sale of hog fertilizer has been outlawed in Los Angeles County.

TECHNICAL COMMITTEE NEEDED

To determine whether or not areas can be developed to meet these basic conditions, a thorough study should be made of available sites throughout Los Angeles County by a committee composed of technical representatives of the County and the City of Los Angeles. Included in this committee should be representatives of the City of Los Angeles authorized to discuss possibilities for extension of water lines to marginal lands under consideration by the committee.

Report of this committee should be made upon a confidential basis to the county regional planning commission and the board of supervisors. This report should indicate the marginal lands suitable for the proposed zoning, and should outline the steps required for development of water supply, access roads, and other required facilities. If necessary, the committee might recommend condemnation of a buffer strip of marginal land around the area to be zoned for hog ranch operation, and for development and operation of this land.

ESTABLISHMENT OF REGULATIONS AND CONTROLS

In addition to the necessity for zoning areas for relocation of the hog ranches, it is essential that ordinances be revised to include regulations which will eliminate objectionable conditions common to present methods of garbage collection and hog ranch operation. Such regulations should be comprehensive in their scope, and should include methods of collection, transportation, feeding, and disposal of garbage, construction of facilities at the new hog ranches, and methods of operation of ranches designed to insure a maximum degree of cleanliness and sanitation.

Such regulations could be developed for consideration of the board of supervisors by the technical committee investigating availability of sites for zoning.

MEMBERSHIP OF COMMITTEE

Included on this committee should be representatives of the City of Los Angeles authorized to discuss matters pertaining to an auxiliary water supply for marginal lands under consideration. The committee should also include representatives from the city and county administrative, legal, and health departments, county farm advisor's office, Los Angeles Board of Public Works, county engineer, and regional planning commission.

The committee should be authorized to secure information and data from, and to consult with representatives of civic organizations and affected industries, the air pollution control district, Regional Water Pollution Control Board No. 4, and other governmental agencies.

NEED FOR RESEARCH

One of the principal objections to the operation of garbage fed hog ranches has resulted from the practice of feeding raw garbage to the hogs. Reports have just been received from London which indicate that new methods have been developed in Great Britain for the cooking of garbage which have eliminated these objections, with reduced costs of operation and greater production of pork. Adequate data are not yet available, and it might be advisable to send trained observers to the British Isles for the purpose of observing these developments and the possibility of adaptation of the new methods to Los Angeles County conditions.

In general, it is reported that in London collected garbage is dumped into hoppers which feed onto conveyor belts. While the garbage is traveling along these conveyors, objectionable material is removed by manual sorting operations. The material passes from the conveyor belts into cookers and is cooked with live steam for more than an hour.

After cooking, the resulting gelatinous mass is poured into molds which are approximately 30 inches in diameter and 15 inches high. The material hardens in these molds to form a gelatinous rubbery substance similar in some respects to a tub of cheese.

This material is in great demand for hog feeding and is said to command a price equivalent to $20 or $25 per ton. The hogs consume virtually all of the material and a major reduction is accomplished in the cost of transportation of garbage and of disposal of waste material. Also, it is reported that a greater production in pounds of pork per ton of garbage is accomplished.

Hog feeders in the Los Angeles area report that they have experimented with the cooking of garbage but have found that the resulting material, while acceptable to the hogs, is disastrous in its effect due to the excessive quantity of citrus wastes present in our local garbage. Such material is definitely not present in English garbage and it may be that removal of citrus peel and similar wastes would have to be undertaken if a similar garbage cooking operation is to be successful in this area.

Such removal should not be difficult and might be accomplished by manual or mechanical means in connection with the conveyor belt operation described above.

It is interesting to note that the waste from domestic usage of citrus in this area is estimated to be in excess of 60,000 tons per year or approximately 200 tons per day. Citrus wastes from commercial usage in Los Angeles County is generally utilized in the production of cattle feed or other salable by-products. Six and one-half tons of such waste are dehydrated to produce one ton of dry cattle feed of high food value. This material is sold to dairies at prices ranging from $25 to $40 per ton.

If citrus peel and similar wastes were removed from the garbage and dehydrated in a similar manner, it would be possible to produce at least 30 tons per day of similar cattle food and the value of the salvaged material should offset the cost of the operation.

ADVANTAGES OF COOKED GARBAGE

If research should indicate that the London Process for cooking garbage could be successfully adapted to Los Angeles conditions, the possibilities would be revolutionary in scope.

Problems incident to transportation of raw garbage to the hog ranches would be eliminated.

Small plants for steam cooking of the garbage could be constructed and operated without nuisance at strategic locations in industrial areas, so that collection trucks could operate with maximum economy and efficiency. At these plants, the garbage might be segregated for steam cooking of hog feed and dehydration of citrus peel into cattle food.

The resulting hog food should be much higher in food value than raw garbage, and cost of the operation should be offset by value of cattle food produced.

Resulting hog and cattle food would be easier to transport to distant ranches, without danger of spoilage or development of unsanitary conditions. Because of the higher food value and possibilities of transportation to remote areas, cities and communities should receive a greater income from sale of their garbage.

Most important, however, would be the elimination of a major source of objection to the hog ranches. There would be no waste garbage to be removed and buried, and the possibility of odors, flies, rodents, and pollution would be greatly reduced.

USE OF FOOD SUPPLEMENTS

Present methods of garbage fed hog ranch operations are admittedly crude and inefficient. Less than 20 percent of garbage is actually consumed by the hogs. Changes in methods of transportation and development of new feeding techniques should at least double the production of pork per ton of garbage fed.

Also, garbage fed hogs are subject to an unusually high mortality rate. At the most efficiently operated ranches, less than 6 hogs out of 10 survive to maturity. This loss is an economic handicap to the rancher.

A recent development which has proven successful in other areas involves the use of antibiotic (aureomycin) feed supplement, which is said to prevent disease and runtiness, and to materially increase quantity of pork production from a specific quantity of food.

A development of American Cyanamid Corporation, this supplement has been the subject of recent full-page advertisements in the Saturday Evening Post and various national agricultural magazines.

RESEARCH ON PILOT PLANT SCALE

Research should be undertaken at once to determine on a pilot plant scale whether or not these developments would be successful in the Los Angeles area.

Such research might possibly be conducted by the California Institute of Technology on a contract basis, and if successful, would simplify the continued operation of the hog ranch industry in a manner that would bring credit to Los Angeles County.

CONCLUSIONS

1. Unless prompt action is taken, the industry created by the feeding of garbage to hogs may soon be wiped out.

2. Principal objections to the operation of existing hog ranches are caused by:

(a) Residential and commercial development of adjacent property.
(b) Odor nuisance caused primarily by failure to promptly remove garbage which has been rejected by the hogs.
(c) Fly nuisance caused by lack of adequate permanent facilities for sanitary operation of the ranches.
(d) Rodent nuisance which is eliminated where ranches are constructed on a permanent basis, and efficiently operated.
(e) Water contamination and pollution hazard where ranches are located adjacent to streams or upon coarse gravel formations above aquifers supplying domestic water.

3. If hog ranches are eliminated, economy of the entire area will be adversely affected by:

(a) Loss of revenue to cities and communities, amounting to at least $500,000 per year.
(b) Increased cost of garbage disposal, amounting to at least $1,000,000 per year.
(c) Adverse effect upon related industries, such as slaughter houses, meat processing and distributing plants, and by-products plants.

4. If hog ranches are to continue operation, responsible governmental agencies must cooperate to:

(a) Properly zone suitable areas where ranches may operate on a permanent basis without nuisance to abutting property owners.
(b) Revise ordinances to establish regulations and controls necessary for sanitary and efficient collection and transportation of garbage and operation of the hog ranches at their new locations.
(c) Conduct research into possible methods for more efficient and sanitary transportation and feeding of garbage.

RECOMMENDATIONS

1. That details of this report be discussed by the board of supervisors meeting as a committee of the whole.

2. That Los Angeles city officials be invited to discuss the problem with the board, and to cooperate in efforts to develop a solution.

3. That a technical committee be created to:

(a) Determine whether or not suitable areas can be developed and zoned for operation of hog ranches.

(b) Prepare suitable revisions to existing ordinances, for regulation and control of collection, transportation and feeding of garbage, and for construction of improvements and operation of hog ranches.

(c) Prepare progress reports and recommendations for immediate action to the board.

(d) Prepare a final report and recommendations to the board.

4. That this technical committee include representatives of both the City and County of Los Angeles, from the following departments:

(a) Administrative.
(b) Legal.
(c) Health.
(d) Water.
(e) Public Works.
(f) Engineer.
(g) Planning.
(h) Farm advisor.

5. That the committee be authorized to secure information and data from, and to consult with representatives of interested civic organizations and affected industries, the air pollution control district, Regional Water Pollution Control Board No. 4, and other governmental agencies.

6. That the chief administrative officer be authorized to negotiate an agreement with the California Institute of Technology or other local university for development of a research project to study advanced methods for cooking and feeding of garbage to hogs.

HOG RANCHES FEEDING GARBAGE COLLECTED IN LOS ANGELES COUNTY AS OF DECEMBER, 1949

Name	Location	Source of garbage	Amount tons/Yr.	No. of swine
Fontana Farms	Fontana	Los Angeles Central	157,000	55,000
Boston Chury Hog Farm	Fullerton	Whittier	2,200	*5,800
San Pedro Commercial Co.	Soledad Canyon	Los Angeles Valley, Los Angeles Harbor, Bellflower, Mayfair, Belvedere	35,222	5,000
Buena Park Hog Ranch	Miller and Orangethorpe, Buena Park	Belvedere	-----------	*5,000
Saltonstall & Wright	Palo Verde and Orangethorpe, Artesia	Long Beach	27,377	4,000
A. & A. Feeding Company	Saugus	Pasadena	16,500	3,000
P. Carmean Hog Ranch	Palo Verde and First St., Artesia	Bell, Maywood, West Los Angeles	13,000	3,000
Trio Feeding Co.	10645 E. Sixth St., Artesia	Compton, Glendale, South Lakewood, West Hollywood	18,418	2,750
Pico Feeding Co.	Pico	Santa Monica, East Los Angeles	8,640	2,500
M. E. Grant	Peck Rd., El Monte	Burbank	7,000	2,300
Agajanian Hog Ranch	Haskell Canyon	Los Angeles Valley Gardena	8,810	2,000
Diamond D. Hog Ranch	885 E. Clark St., El Monte	San Gabriel, Covina, West Covina, Lakewood	4,316	2,000
Golden West Hog Farm	1305 Sixth St., Artesia	Redondo Beach, Walnut Park	3,668	2,000
C. J. Lyons Hog Ranch	Vasquez Canyon, Saugus	L. A. Western	16,428	2,000
Wacker Hog Ranch	Palo Verde and Orangethorpe, Artesia	Huntington Park	1,080	2,000
V. & M. Feeding Company	1005 E. Clark St., El Monte	El Monte, Arcadia, Sierra Madre	4,356	1,800
Green Hog Ranch	2000 E. Beryl St., Torrance	Hawthorne, Hermosa Beach, Torrance, Arnaz, Mesa Heights, Clifton Heights	4,248	1,500
John Kazaroff Hog Ranch	2916 E. Gladstone Ave., Covina	Montebello, Monterey Park, South Pasadena	5,460	1,500
Atlas Feeding Co.	Agual Dulce Canyon, Saugus	Culver City	2,112	1,200
Bob Hohn Hog Ranch	Plum Canyon, Saugus	Firestone Park	4,992	1,200
Paul Benz Hog Ranch	Plum Canyon	Los Angeles Western	5,286	1,000
Sherman Hog Ranch	Haskell Canyon	Los Angeles Western	5,286	1,000
Watson Hog Ranch	Santa Fe Dam, Duarte	Monrovia, San Marino	3,660	1,000
Foley's Hog Ranch	3401 Spencer St., Torrance	El Segundo, Manhattan Beach	2,466	700
J. J. Hohn Hog Ranch	Soledad Canyon, Saugus	Lynwood, South Gate	6,090	700
Heydon Hog Ranch	Upland	Claremont, San Dimas	1,560	*600
Saltonstall & Wright	Plum Canyon	Long Beach	2,700	600
Wells Hog Ranch	2075 Buena Vista, Monrovia	Altadena	-----------	600
Pomona Feeding Company	2500 S. Gary, Pomona	Azusa, Glendora, La Verne, Pomona	5,307	500
Vartanian Hog Ranch	Soledad Canyon	Los Angeles Valley	2,000	450
Norwalk State Hospital	Norwalk	Same	-----------	400
Martin Litwin Hog Ranch	Pico	Markets	-----------	300
County Honor Farm	Castaic	Same	-----------	288
Mariott & Ross Hog Ranch	Lancaster	Lancaster	-----------	125
Bryant & Eddington Hog Ranch	Kings Canyon, Honby	San Fernando	450	100
Welching Hog Ranch	Lancaster	Lancaster	-----------	100
Rancho Los Amigos	Imperial Hwy. and Paramount	Same	-----------	100
Platz Hog Ranch	Acton		-----------	14
McLean	174th and Western		-----------	50
Hohns Hog Ranch	Ventura	Inglewood, South Gate	2,870	-----------
C. J. Lyons Hog Ranch	Buena Park	Beverly Hills, Athens, Downey, Norwalk	11,352	-----------
J. Padilla Hog Ranch	San Fernando	San Fernando	954	-----------
Standard Feeding Company	Ontario	Alhambra	6,260	-----------
Tewksberry, D. M.	Huntington Beach	Signal Hill	416	-----------

Total garbage reported collected----397,504 tons per year
Total number of hogs reported-----102,777
Total number hog farms----------- 44
Not all garbage quantities are reported—such as markets, restaurants, hotels, etc.

* 1950 figures, not included in total. 1949 figures unavailable.

APPENDIX NO. 12

END OF GARBAGE CAN SEEN IN LOS ANGELES WASTE DISPOSAL PROGRAM[1]

By Arthur Pickett
Deputy County Engineer
Los Angeles

The greatest inspiration and challenge which a civil engineer can have is the knowledge that solution of a particular problem will raise the standards of living, and benefit the public health, welfare, and economy of the community in which he lives. It is primarily for this reason that engineers are interested in solution of waste disposal problems which confront cities and unincorporated communities of the Los Angeles metropolitan area.

BASIC OBJECTIVES

Essentially, solution of these problems will accomplish four objectives:

1. The ultimate removal of the garbage pail from kitchens, back porches, and service yards of our homes, restaurants, and food processing plants.
2. The efficient collection of all rubbish and refuse in residential districts at frequent intervals, in a manner so convenient and economical to the householder as to promote cleanliness and sanitation of premises with a minimum of burning in backyard incinerators.
3. The development of adequate facilities for economical disposal of industrial wastes which constitute a serious water pollution and nuisance hazard.
4. The elimination of indiscriminate dumping on public and private property, which at present is not only a nuisance and menace to the public health and welfare, but has become a public disgrace in many of our rural areas.

POLICY DECISIONS REQUIRED

The advantages of such a program to communities are obvious. The difficulties involved in obtaining of the objectives are not generally understood. Of primary importance is the need for the following basic policy decisions:

1. Shall private industries continue to function, subject to urgently needed regulations and controls, or shall the collection and disposal of all wastes be performed by governmental agencies, after voting of bonds for necessary equipment and facilities?
2. Shall local regulations and control be retained, or shall adjoining cities and communities forget their boundary lines and join together in a coordinated program to secure efficient and economical disposal of their wastes?
3. Shall the necessary financing be obtained through bond issues or tax levies, or through the medium of service charges added to bills for light, water or other municipal services, or through concession contracts or franchises to private operators who will provide their own financing?

QUANTITIES OF WASTE PRODUCED

While complete data are not available, it is conservative to estimate that production of all types of waste from the Los Angeles metropolitan area at present exceeds 10,000 tons per day.

Industries, business buildings, stores and markets produce more than half of this total. In virtually all cities and unincorporated communities, the producer of such waste must either contract with a private collector or provide his own disposal facilities.

The combined population of the 44 cities is approximately 3,300,000 persons. All of these cities provide for collection of garbage, tin cans, and bottles, but 11 cities, with a combined population of more than two million, do not collect combustibles and other refuse. Unincorporated communities, with a population of more than 400,000 are not provided with any regular collection facilities.

Residents of these 11 cities and the unincorporated communities must either contract with private collectors, utilize backyard incinerators, bury their waste, resort to indiscriminate dumping along roads, into flood control channels, or on private property, or transport their waste in their own trailers or other vehicles to public dumps.

In other words, cities and disposal districts at present provide for regular collection and disposal of about one-third of the total waste produced in the metropolitan area, and the remaining two-thirds are either handled by some 3,000 private waste collectors or by the individuals responsible for its production.

COST OF COLLECTION AND DISPOSAL

In their survey of cities and districts providing regular collection facilities, the County Sanitation Districts report that cost to the property owner or municipality for collection and disposal of rubbish, refuse, and garbage varies between $5 and $18 per ton of material. On this basis, cost of collection and disposal of all waste produced in the metropolitan area at present would exceed $100,000 per day or $30,000,000 per year.

Investigations indicate that these costs could be greatly reduced by application of engineering principles and the utilization of engineering research in development of efficient methods of collection, recovery of by-products, and disposal. Unless prompt action is taken, however, to initiate such a program and to correct objectionable practices which threaten the existence of the waste industry, conditions detrimental to the public health and welfare will grow steadily worse in many communities, and cost may increase by 50 percent or more in the immediate future.

PRESENT QUANTITIES OF GARBAGE

At present, more than 1,200 tons of garbage are collected each day from cities and garbage disposal districts of the metropolitan area. In addition, private collectors obtain garbage from 15,000 restaurants, thousands of markets, and hundreds of food processing plants, as well as unincorporated communities, with a combined population of more than 400,000.

No data are available as to the quantities obtained by private collectors from these sources. It is estimated, however, that the restaurants produce at least 100 tons of garbage per day, that an additional 100 tons are collected from the unincorporated communities, and that 200 tons of market refuse are obtained from markets and food processing plants each day. In other words, more than 1,600 tons of garbage and market refuse are being collected in the metropolitan area each day.

By weight, garbage, therefore, constitutes about 16 percent of the total waste produced in the area. The volume of garbage, however, is probably less than 7 percent of the total waste.

Most of this material is sold to hog ranchers who have been paying from $1 to $5 per ton. The collected garbage and market refuse is transported to about 40 hog ranches located on the fringes of the metropolitan area and in adjacent counties. Until recently, these ranches fed an average of more than 100,000 hogs and marketed about 150,000 hogs each year.

HOG RANCH PERMITS REVOKED

Recently, San Bernardino County enacted an ordinance providing strict regulation and control over hog ranch operation and limiting the size of ranches in a major portion of the County to a maximum of 800 hogs. This action forced the closure of Fontana Farms, where for many years, an average of 55,000 hogs have been fed on garbage from the Central District of Los Angeles City.

Permits of several hog ranches in Los Angeles County have also been revoked during the past year, and authorities agree that most of the remaining ranches are in a precarious situation and cannot indefinitely continue operations at their present locations.

OBJECTIONS TO HOG RANCHES

Principal objections to existing hog ranches are due to:

1. Residential and commercial development of adjacent property.

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[1] As published in the *Southwest Builder and Contractor*, Nov. 9, 1951.

CITIES AND GARBAGE DISPOSAL DISTRICTS OF LOS ANGELES COUNTY DISPOSING OF GARBAGE TO HOG FARMS AS OF DECEMBER, 1949

December 28, 1950

City	Amount tons per year		Name and location of hog farm
Alhambra	6,260		Standard, Ontario
Arcadia	3,000		V. & M., El Monte
Azusa	1,020		Pomona, Pomona
Bell	1,500		Carmean, Artesia
Beverly Hills	6,552		Lyons, Buena Park
Burbank	7,000		Grant, El Monte
Claremont	520		Hayden, Upland
Compton	4,800		Trio, Artesia
Covina	864		Diamond, El Monte
Culver City	2,112		Atlas, Saugus
El Monte	780		V. & M., El Monte
El Segundo	882		Foley, Torrance
Gardena	2,160		Agajanian, Saugus
Glendale	9,146		Trio, Artesia
Glendora	420		Pomona, Pomona
Hawthorne	600		Green, Torrance
Hermosa Beach	1,248		Green, Torrance
Huntington Park	1,080		Wacker, Artesia
Inglewood	1,080		Hohn, Ventura
La Verne	432		Pomona, Pomona
Long Beach	30,077	27,377	Saltonstall & Wright, Artesia
		2,700	Saltonstall & Wright, Saugus
		30,077	
Los Angeles Central	157,000		Fontana, Fontana
Los Angeles Western	37,000	5,286	Benz, Saugus
		10,000	Carmean, Artesia
		5,286	Sherman, Saugus
		16,428	Lyons, Saugus
		37,000	
Los Angeles Valley	17,900	9,250	San Pedro, Saugus
		2,000	Vartanian, Saugus
		6,650	Agajanian, Saugus
		17,900	
Los Angeles Harbor	7,200		San Pedro, Saugus
Lynwood	3,020		Hohn, Saugus
Manhattan Beach	1,584		Foley, Torrance
Maywood	1,500		Carmean, Artesia
Monrovia	2,100		Watson, Duarte
Montebello	1,560		Kazaroff, Covina
Monterey Park	1,560		Kazaroff, Covina
Pasadena	16,500		A. & A., Saugus
Pomona	3,435		Pomona, Pomona
Redondo Beach	2,160		Golden, Artesia
San Fernando	1,404	450	Bryant, Honby
		954	Padilla, San Fernando
		1,404	
San Gabriel	2,220		Diamond, El Monte
San Marino	1,560		Watson, Duarte
Santa Monica	8,640		Pico, Pico
Sierra Madre	576		V. & M., El Monte
Signal Hill	416		Tewksberry, Huntington Beach
South Gate	4,860	1,790	Hohn, Ventura
		3,070	Hohn, Saugus
		4,860	
South Pasadena	2,340		Kazaroff, Covina
Torrance	1,560		Green, Torrance
West Covina	260		Diamond, El Monte
Whittier	2,220		Boston, Fullerton

County Garbage Disposal Districts

City	Amount tons per year	Name and location of hog farm
Arnaz	120	Green, Torrance
Athens	1,800	Lyons, Buena Park
Bellflower	1,092	San Pedro, Saugus
Belvedere	17,160	Buena Park, Buena Park
Clifton Heights	60	Green, Torrance
Downey	1,800	Lyons, Buena Park
Firestone	4,992	B. Hohn, Saugus
Mayfair	520	San Pedro, Saugus
Mesa Heights	660	Green, Torrance
Norwalk	1,200	Lyons, Buena Park
San Dimas	1,040	Hayden, Upland
South Lakewood	728	Trio, Artesia
Walnut Park	1,508	Golden, Artesia
West Hollywood	3,744	Trio, Artesia
Lakewood Utilities	972	Diamond, El Monte
Total Garbage	397,504 tons per year	

NOTE: Vernon is not listed because there are no organized collection facilities in that city. Palos Verdes Estates has a municipal dump within the city for its garbage.

2. Odor nuisance caused primarily by failure to promptly remove and bury garbage rejected by the hogs. Garbage received at a hog ranch is dumped and spread on long concrete slabs for consumption by the hogs. Hogs are particular of their diet and refuse to eat about 70 percent to 80 percent of the material which is trampled, inedible, or spoiled. When this material is not promptly removed and buried, or when the concrete slabs are not thoroughly cleaned each day, the resulting odor nuisance may seriously affect persons within two miles of the ranch.

3. Fly and rodent nuisance caused by lack of adequate facilities for sanitary operation of the ranches. Health Department inspectors state that the rodent nuisance is completely absent from ranches which are properly constructed and operated.

4. Water pollution or contamination hazards which are serious in certain areas where ranches are located adjacent to streams or upon coarse gravel formations above aquifers supplying domestic water.

Complete elimination of hog ranches would, of course, eliminate the revenue which affected cities and disposal districts directly or indirectly receive for their garbage. Alternate facilities for disposal of garbage would also be required. Mr. Warren Schneider has reported to the Board of Public Works of the City of Los Angeles, for example, that grinding of Los Angeles City garbage for disposal into the public sewers would require immediate construction of facilities at the new Hyperion Sewage Treatment Plant at an estimated cost of $5,000,000. He strongly urges continued operation of hog ranches.

Elimination of hog ranches would also have a serious effect upon related industries such as slaughter houses, meat processing plants, distributing plants, and by-products plants due to the difficulties and expense involved in shipment of additional hogs from the Midwest for processing.

PERMANENT SOLUTIONS

Engineering investigations indicate that there are several possible solutions to the problem. Every possibility should receive consideration. First, upon the assumption that hog ranches will be eliminated and second, to ascertain whether or not objectionable features of the ranches might be eliminated. It is difficult, however, to discuss all of these possibilities briefly without danger of over simplification of problems which are complicated by many factors of economic, engineering, and political nature.

THE GARBAGE GRINDER SITUATION

Any consideration of the hog ranch problem should include an appraisal of the quantities of garbage which must be collected and disposed of in the future. In this regard, the rate of installation of garbage grinders assumes major importance.

At present, manufacturers estimate that 125,000 garbage grinders have been installed in homes and restaurants of the metropolitan area, and 10,000 additional units are being installed each month. Several communities are virtually free of the garbage pail and the garbage collection truck, and there will be more as time goes on. Garbage grinders in homes, restaurants, and markets would provide the ideal solution of the garbage disposal problem. The sewer system is the natural conveyor of garbage and the elimination of the garbage pail would raise the standard of living and benefit the public health, welfare, and economy of every community.

COMBINED COLLECTION OF ALL WASTES

If garbage has no value to the hog rancher, there is no apparent reason for separate collection providing health regulations will permit collection of garbage with other refuse. Such action will eliminate the problem of segregation by the householder and the garbage collector, both of whom would welcome the change.

Elimination of segregation would permit a reduction in the number of collections of refuse with corresponding reductions of 30 to 50 percent in equipment and personnel required.

DISPOSAL OF GARBAGE IN LAND FILLS

The City of Riverside has demonstrated that disposal of garbage, as well as refuse, can be made into properly operated land fills at reasonable cost. Mr. Irvine, City Engineer, reports that the city is reclaiming land within 4 miles of the city hall at a cost of $0.35 per ton of garbage and refuse delivered to the site. This operation is close to residential development and is being operated without nuisance in the reclamation of land for park purposes.

A number of sites suitable for disposal of garbage, as well as other types of waste, exist in marginal lands adjacent to the metropolitan area. If required permits for acceptance of garbage in these land fills are granted to responsible operators, emergency conditions may be avoided and permanent solution of the entire garbage disposal problem may result.

INCINERATION OF GARBAGE

Eventually, methods may be perfected which will permit the incineration of garbage at reasonable cost. At present, however, there is general public disapproval of the idea of incineration of garbage.

Wastes delivered to an incinerator must be segregated to eliminate noncombustibles and smoke-producing wastes such as rubber tires. Segregation is never completed by the householder, the refuse collector must provide additional labor on every truck to avoid refusal of his loads at the incinerator.

Also, incineration will not provide for disposal of all wastes and a land fill operation will still be required for disposal of ashes, noncombustibles and industrial wastes.

Finally, costs of incineration are high, the accepted costs being $2 per ton of material delivered to the site. Some cities which are operating their facilities at less than full capacity report cost as high as $3.80 per ton but expect that these costs will be materially reduced as quantities increase.

All of the above possibilities assume that continued operation of the hog ranch would not prove successful. Actually, however, engineering studies indicate that hog ranches could be so located and constructed as to operate without nuisance or valid objections.

Such results may be achieved by the application of sound engineering principles in location of land, provision for buffer strips, access roads, water supply, and sanitary facilities, and the development of adequate regulations and controls governing the construction and operation of ranch facilities at new locations. It appears probable, however, that engineering research offers an even greater possibility for success if methods presently utilized in England can be adapted to conditions of the Los Angeles metropolitan area.

THE ENGLISH METHOD

Under the English method, collected garbage is delivered to dry rendering plants conveniently located in industrial districts. The garbage is dumped into hoppers which feed onto conveyor belts. While the garbage is traveling along these conveyors, objectionable material is removed by manual sorting. The material passes from the conveyor belts into steam-jacketed cookers, where it is cooked under pressure for about two hours.

After cooking, the resulting gelatinous mass is poured into molds which are approximately 30 inches in diameter and 15 inches high. The material hardens in these molds to form a gelatinous rubbery substance similar in some respects to a tub of cheese. This material is sterile and can be stored for about two weeks. It is easily transported and is in great demand for hog feeding in England, where it is said to command a price equivalent to $20 or $25 per ton of garbage. The hogs consume virtually all of the material, which means a major reduction in cost of removal of rejected garbage and facilitates maintenance of clean ordor-free premises.

Due to food shortages which exist in England, it would seem that Los Angeles garbage should produce greater quantities of pork. Apparently, however, the reverse is true as reported data indicate that from 5 to 7 times as much pork is produced per ton of the cooked English garbage.

Hogs fed upon cooked garbage would produce pork free from danger of trichinosis and other diseases which are attributed to garbage-fed hogs.

The English method of cooking garbage for hog feeding, if adapted by engineering research to Los Angeles conditions, might conceivably produce revenue sufficient to cover most of the cost of collection, transportation, and disposal of all rubbish and garbage from residential districts of the metropolitan area during the next 15 years.

Engineering research and pilot plant operations are essential and must precede development of plans for cooking of garbage by the English method. Years ago, local hog feeders attempted to cook garbage, but these efforts were unsuccessful apparently because of the large percentage of citrus peel contained in the material. Admittedly, citrus is largely absent from English garbage. However, it is also true that the wet rendering process employed by local hog ranchers produces a much different foodstuff than the dry rendering process utilized in England. It seems probable that the dry rendering process would caramelize citrus peel and similar waste, making them acceptable to the hog and increasing materially the food value of the cooked material.

If research proves successful, required capital costs for installation of rendering plants would be justified. Their construction, in accordance with engineering plans, might be financed either by formation of districts to vote bonds, by joint action of several cities and unincorporated communities under provisions of the Joint Powers Act, or by granting of concession contracts to private enterprise.

APPENDIX NO. 13

REPORT UPON THE COLLECTION AND DISPOSAL OF REFUSE IN THE COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY, CALIFORNIA

COUNTY SANITATION DISTRICTS
OF
LOS ANGELES COUNTY

Los Angeles 15, California
November 8, 1950

To the Boards of Directors
County Sanitation Districts of Los Angeles County
Los Angeles, California

GENTLEMEN: On October 13, 1949, you instructed me to investigate, and report upon, the feasibility of the sanitation districts participation in refuse collection and disposal in the district areas. This I have done and have the honor to submit herewith the report entitled, "Report Upon the Collection and Disposal of Refuse in the County Sanitation Districts of Los Angeles County."

The collection and disposal of refuse is unlike similar activities with respect to sanitary sewage and industrial wastes in that no immediate health implications are posed by carelessness or laxity in refuse collection and disposal methods. The two activities meet on a common ground, however, when one considers garbage disposal to the district sewers, which currently is practiced quite extensively and, in all probability, will increase.

As more restrictions to methods employed in refuse disposal are imposed by agencies such as public health and air pollution control the disposal practices will approach uniformity and it appears that sooner or later some carefully controlled and regulated disposal methods will obtain as a basic pattern for all of the district area. That this objective may best be attained with well integrated cooperative action seems axiomatic.

To be fully effective any district plan must comprehend collection as well as disposal of refuse for obvious reasons, and this report visualizes that if a district plan is inaugurated the district alone will be the collecting as well as the disposal agency.

The sanitation districts offer a substantial framework upon which to build an integrated cooperative refuse collection and disposal system; indeed, the district enabling legislation offers about the only existing method for so doing. Disposal of garbage to the district sewers dictates close cooperation between sewerage and refusal disposal management.

This report has been carefully reviewed by Professor Harold B. Gotaas, University of California, Berkeley—a well-known authority upon refuse disposal matters. Mr. Gotaas' review has had particular reference to the basic philosophies of the district plan as patterned upon existing conditions here and elsewhere. Mr. Gotaas has expressed complete concurrence with our findings and conclusions.

This report is submitted without recommendation unless the districts, or any of them, desire to inaugurate a plan or plans of refuse collection and disposal, in which case the recommendations in Part II, Chapter 3, and Part III, Chapter 3, will obtain.

It is desired to acknowledge with gratitude the help and assistance tendered by the offices of the county engineer and surveyor; the Los Angeles City Waste Disposal Engineer; the Regional Water Pollution Control Board; the Air Pollution Control; the state and county health departments; the University of California, sanitary research project; city engineers of all district cities, and the members—clerical and engineering—of the joint administration office staff upon whom the brunt of the work involved in this investigation and report has fallen.

Yours truly,

A. M. RAWN
Chief Engineer and
General Manager

STATEMENT OF FACTS AND FINDINGS[1]

Part I—Introduction

CHAPTER 1—MERIT OF A COMPREHENSIVE PLAN FOR THE COLLECTION AND DISPOSAL OF REFUSE

1. The County Sanitation Districts, which are the subjects of this report, comprise 470 square miles, in which lie 27 incorporated cities, portions of an additional 6, and many unincorporated communities.

2. Over 1,700,000 persons reside within the district boundaries. One million of these reside in incorporated cities. Three hundred thousand live in garbage disposal districts and 400,000 elsewhere.

3. City residents receive refuse collection services under the supervision of each individual city. Those living in garbage disposal districts are served by contractors. The remainder negotiate privately with individual collectors for refuse collection.

4. Appropriate areas, suitable for final land disposal of refuse, are rapidly disappearing due to expanding urbanization.

5. Disposal methods which will extend the life of existing disposal sites must be inaugurated promptly.

Part I—Introduction

CHAPTER 2—PURPOSE AND SCOPE OF REPORT

6. The County Sanitation District Act was amended by the 1949 Legislature to permit Sanitation Districts to enter the field of refuse collection and disposal and on October 13th of that year the districts' chief engineer was instructed to investigate and report upon the feasibility of such action.

Part I—Introduction

CHAPTER 3—NATURE AND QUANTITY OF REFUSE

7. For the purpose of this report the following definitions are presented:

(a) Garbage comprises kitchen wastes, spoiled foods from markets and the like.
(b) Noncombustible refuse is, in general, household refuse which will not burn.
(c) Combustible refuse is household and yard refuse which will burn.
(d) Industrial waste, waste materials from building operations, large tree trunks and large metal objects, street sweepings, wastes from park maintenance, and the like, are not included in the foregoing three classifications.
(e) Dead animals are classified only as such.

8. In the Los Angeles metropolitan area variations in refuse production are principally due to seasonal changes and personal habits.

9. Seasonal changes affect the rate of production of refuse, which is highest for garbage in the melon season for combustible refuse in the Spring.

10. The quantities of refuse produced in the districts are greatly influenced by the habits of backyard incineration and wrapping of garbage. Elimination of either, or both of these, will materially affect the quantity of refuse to be collected.

11. Total annual production, rather than seasonal fluctuations or rates, becomes the significant factor in refuse disposal in areas as large as the districts.

12. In pounds per capita per day the average production for the entire district area amounts to 0.65 for garbage, 0.59 for noncombustibles and 1.16 for combustibles. If backyard incineration is abandoned the figure for combustible refuse will approximate 2 pounds per capita per day.

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[1] This statement constituted the first eight pages of the 141-page report.

13. In addition, it has been estimated that there will be 0.40 pounds per capita per day of refuse not subject to routine collection.

Part II—Collection of Refuse

CHAPTER 1—FACTORS AFFECTING

14. Four steps are involved in refuse collection: carrying to curbside; loading into collection vehicle; arranging in collection vehicle; and discharging at disposal or transfer site.

15. Of the 1,700,000 district population, refuse from the homes of but 145,000 is collected from the backyard. From all of the remainder, refuse containers are set out by the householder for collection from the curb.

16. Backyard collection by the collecting agency offers advantages in scheduling collection routes, but curbside collection is obviously the least expensive. All operations involved in collection, excepting the setting out process, are always the responsibility of the collecting agency.

17. The cost of loading is a direct function of the speed with which the refuse can be loaded.

18. The speed of collection depends in part upon the size of the refuse container, which should be limited to 10 gallons for garbage and 30 gallons for mixed refuse. Weight should be limited to 50 pounds for full containers.

19. In the Los Angeles metropolitan area garbage is usually collected twice a week from residences and daily, except Sundays, from commercial establishments.

20. The principal reason for collecting garbage twice a week in the Los Angeles metropolitan area is to render it fit for hog feed as it seldom accumulates rapidly enough to make this otherwise necessary.

21. All factors considered, and particularly when collection is made from the curb, it appears desirable to continue the collection of garbage twice weekly.

22. Collection of combustible and noncombustible refuse once a week will minimize the home storage problem and appears desirable.

23. Because of the sewerage facilities available for the disposal of garbage by grinding to the sewers it appears desirable that garbage continue to be kept in containers separate from other refuse.

24. For garbage collection the low truck with sliding cover appears most appropriate and for combustible and noncombustible refuse the mechanized load-compacting unit.

25. Garbage by itself is relatively incompressible and separate collection in compaction type units does not appear to be warranted.

26. Distribution of garbage and noncombustible refuse in open trucks is easily accomplished by occasional raking. However, if open noncompacting trucks are used for combustible refuse collection, the material must be carefully loaded and arranged by hand if the weight carrying capacity of the vehicle is to be realized.

27. The location of the disposal or transfer site is of paramount importance. Collection crews required to travel 10 or more miles to dispose of collected refuse will spend only 5 or 6 hours per 8-hour day collecting.

Part II—Collection of Refuse

CHAPTER 2—EXISTING SYSTEMS IN THE SANITATION DISTRICTS INCLUDING DISPOSAL

28. There are about 40 organized refuse collection systems in the Sanitation Districts serving 1,300,000 persons. These systems are of the following four types:

(a) Collection by city personnel and equipment.
(b) Collection by private collector through contractual agreement with a city.
(c) Collection under city franchise and agreement, directly with individual householders.
(d) Collection in Garbage Disposal Districts, by private contractors under contract with the Disposal District.

29. Refuse collection for the remaining 400,000 residing within the district boundaries is by agreement between each householder and private collectors.

30. Municipal practices are many and varied. Brief explanations of each city's collection and disposal operations are presented in the text.

Part II—Collection of Refuse

CHAPTER 3—SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS FOR A DISTRICT PLAN

31. If a district plan is inaugurated it is recommended

(a) That curbside collection of refuse be basic to such a plan;
(b) That extension to the basic plan to backyard collection be at the option of the District Directors or the citizens of a city or subdivision within the district area;
(c) That the plan incorporate as basic the separation of the refuse at the household into combustible refuse, noncombustible refuse, and garbage, the last nonwrapped;
(d) That initially, household garbage be collected twice a week and commercial garbage once a day, excepting Sundays;
(e) That rules regarding the size of refuse containers be established and vigorously enforced;
(f) That combustible or mixed combustible and noncombustible refuse be collected in collecting vehicles of the low-bodied, compacting type;
(g) That garbage collecting vehicles be of the low-bodied type with sliding top covers;
(h) That the district be the sole agency responsible for collection of refuse other than that classified as "not subject to routine collection."

Part III—Disposal of Refuse

CHAPTER 1—FACTORS AFFECTING IN THE DISTRICT AREA

32. Refuse disposal in the metropolitan area is so circumscribed by restrictive ordinances and physical limitations as to present one of the most perplexing problems of this nature in the Country.

33. The proximity of the ocean offers no key to the solution because of the necessity for preservation of the county's recreational facilities.

34. The salubrious climate of the area has undergone severe degradation because of increased air pollution said to be occasioned, in considerable part, by open burning at refuse dumps and backyard incinerators.

35. The Air Pollution Control Authority has indicated that such practices must stop in the immediate future. The Air Pollution Control Authority is favorable to the disposal of combustible refuse in high temperature incinerators or landfills.

36. Eighty to eighty-five percent of the district population reside in areas where the density is six or more per acre and, temporarily at least, it may be considered favorable to limit combustible refuse collection to areas of such density, leaving the remainder to employ backyard incineration.

37. The lack of appropriate final land disposal sites renders ineffective any economical plan for refuse disposal.

38. There remain but three well-located sites in the District metropolitan area known, respectively, as Baldwin Hills, City Terrace and Palos Verdes.

39. It is believed that use of these three sites will not contribute in any manner to ground water pollution.

40. Without incineration of combustible refuse, the City Terrace site may be expected to last until 1975, while with incineration, it should last until the year 2000.

41. Without incineration the Palos Verdes and Baldwin Hills sites may be expected to last until about 1985; with incineration, to sometime beyond the year 2000.

42. If refuse originating outside the Sanitation Districts is disposed of at these three locations, their useful lives will be correspondingly reduced.

43. In addition to the three major landfill sites there are some low-lying areas in the districts which may conveniently be used for a few years. No attempt has been made to delineate them because they are not of significant capacity.

44. Possible disposal sites for burial of combustible and noncombustible rubbish are the large gravel pits in the San Gabriel Valley. However, a more complete investigation of the ground water pollution potential from these pits must be had before a recommendation for or against their use may be made.

45. If the San Gabriel gravel pits are used it will decrease the estimated costs for rubbish disposal in the Upper San Gabriel Valley.

46. A comprehensive incineration program reducing to a minimum the amount of material to be buried will conserve landfill sites.

47. For sanitary reasons it seems unwise to bury garbage by the "sanitary fill" method in the metropolitan area.

48. Garbage may be:

(a) Ground and discharged into the sewers,
(b) Incinerated, or
(c) Possibly composted.

49. Noncombustible refuse not subject to salvage may be disposed of directly to landfill sites.

50. Much of the disposal site capacity may be conserved by salvage.

51. It is believed that salvage operations can best be carried on by private operators under district supervision.

Part III—Disposal of Refuse

CHAPTER 2—METHODS OF DISPOSAL

Dumps and Landfills

52. Because of limitations and restrictions, final disposal of noncombustible refuse and ash residue from incinerators will probably be in landfills.

53. The term "open dump" is used to define a landfill which is left uncovered. Open dumping is usually confined to combustible and/or noncombustible rubbish.

54. In some parts of the country open dumps are set afire at times for sanitary reasons and to reduce their volume. At times, they ignite by spontaneous combustion. Open burning of dumps is prohibited in Los Angeles County.

55. Regulatory legislation prohibits open dumping in unincorporated county territory. However, there are six open dumps of significant importance within the district's cities.

56. The general term "landfills" is broken down into "fill and cover," "cut and cover," and "sanitary fill."

57. "Fill and cover" indicates the filling of ravines, excavation and the like, compressing the fill material and covering with earth.

58. "Cut and cover" indicates that a trench has been excavated and subsequently filled with trash and covered with earth.

59. "Sanitary fill" implies that, in addition to combustible and noncombustible refuse, garbage is being disposed of in a "cut and cover" or "fill and cover" landfill.

60. For a landfill operation in the district area to be successful, investigation must disclose that there is no possibility of ground water contamination from it.

61. It is believed that the Palos Verdes Hills, Baldwin Hills and City Terrace sites will not contribute to ground water pollution.

62. Except that water pollution may result there are immense gravel pits in the San Gabriel Valley which may be used for landfill operations.

63. In a preliminary investigation of the San Gabriel Valley gravel pits it has been reported to the districts by a consulting chemist that, if the pits are not used for the disposal of ash, but only for combustible and noncombustible refuse, the only factor present in significant quantities will be carbon dioxide, and that there may be means of controlling this.

64. The character of equipment required for landfilling operations is about the same for large and small operations, although the quantity requirements may change. Thus, the total cost of operation is almost entirely a function of the total tons of refuse buried.

65. The operational cost of "fill and cover" varies from about 30 to 60 cents per ton; while the over-all cost will vary from 40 cents to one dollar per ton, depending upon circumstances.

66. Additional excavation in the "cut and cover" operation increases the over-all cost for this process by about 20 percent.

67. It is estimated that the disposal of combustible and noncombustible refuse in the three major sites will approximate 80 cents per ton.

Incineration

68. Rules imposed or to be imposed by the Air Pollution Control Authority will restrict the use of backyard incinerators, but will permit or encourage high temperature incineration in structures of careful and adequate design.

69. Backyard incinerators are unique in that they are virtually unknown elsewhere in the country. They are said to be strong contributors to smog and to produce a significant part of the eye irritating effect thereof, because their low temperature combustion permits gases to pass from the stack in a relatively unburned state.

70. It is believed that a small number of backyard incinerators in suburban areas will not greatly affect the smog concentration. Therefore, it is suggested that, as basic to any district plan, backyard incineration be discontinued in areas where there is a population of six or more persons per acre.

71. High temperature incinerators may be constructed and operated to produce stack effluents of minimum objectionable characteristics. Such incinerators, combining burning and combustion chambers, have improved the quality of stack effluent so as to render it acceptable to the Air Pollution Control Authority.

72. High temperature incinerators in use today fall into five general classifications:

(a) Basket grate,
(b) Multiple-cell, mutual assistance,
(c) Single hearth,
(d) Rotary kiln,
(e) Traveling grate.

A careful evaluation of the characteristics of each is an essential prerequisite to the selection of a type for use in this area.

73. The incineration process breaks down into six general operations:

(a) Dumping or storing,
(b) Charging the furnace,
(c) Burning the refuse,
(d) Completing combustion in an auxiliary combustion chamber,
(e) Removing fly ash,
(f) Venting the stack effluent to the atmosphere.

74. Removal of ash residue and transportation to landfill sites is a further operation which presents material problems in design and operation.

75. Waste heat from incineration has, at times, been salvaged and used to develop low pressure steam.

76. There are serious problems associated with the recovery of waste heat, principal among which is that the incinerator soon becomes primarily a heat producer, with the process of incineration becoming secondary and, as a consequence, suffering degradation.

77. Power is required to convert certain materials salvaged to useful form and it is possible that this could be tied into waste heat recovery by the disposal agency.

78. It would be false economy to attempt any salvage operations which might jeopardize incineration in this area where controlling laws are so stringent.

79. A modern two-stage incinerator will cost approximately $2,000 per rated ton of capacity based on 24-hour operation.

80. An incinerator of modern design rated at 300 tons per 24-hour operation will require an investment of about $600,000.

81. The cost of incinerators is almost directly proportional to the size and no economies are effected by large scale construction.

82. Most modern incinerators fall in the range of 100 to 300 tons capacity and at these sizes are in the competitive field.

83. In general, the operating cost per ton of refuse burned is about the same for both large and small scale incinerators.

84. The total cost per ton for incineration in the district area will approximate two dollars. This cost implies 24-hour operation.

85. Inspection of incinerators throughout the country indicates that proper supervision is essential to satisfactory operation.

86. There is ample evidence to indicate that a major incineration program in the sanitation districts should prove adequate and satisfactory.

Transfer Stations

87. Transfer of refuse from collection trucks to semitrailers improves the operating efficiency of the collection vehicle and permits economical use of more remote landfill areas.

88. Transfer stations may be built and operated in any locality without nuisance or annoyance.

89. Transfer of refuse involves three distinct steps:

(a) Dumping hauled refuse into the transfer vehicle,
(b) Hauling the refuse from the transfer site to the place of disposal,
(c) Discharge of the refuse from the transfer vehicle.

90. The cost of items (a) and (c), supra, are relatively constant but the cost of item (b) is a function of the length of the haul.

91. Based upon a 10 mile haul in the transfer vehicle the total cost per ton so transferred and hauled is estimated at $1.05.

92. The most acceptable and useful type of transfer vehicle is a semitrailer with a sliding metal cover to prevent unsightliness, odors, and scattering of refuse.

Central Garbage Grinding Stations

93. The vast network of trunk sewers already available for sewerage will permit disposal of garbage slurry to the sewers, thereby solving a very formidable transportation problem for the districts.

94. Separately collected garbage may be discharged at a garbage grinding station and there reduced to a slurry and disposed of into one of the trunk sewers of the district; such a station may be rendered odor-proof by treatment of the exhaust air.

95. No foreseeable difficulties are anticipated from this form of garbage disposal, sewer transportation and treatment.

96. It is estimated that the total cost for the disposal of garbage into and through the sewers and sewage treatment works will amount to about $1.10 per ton of wet garbage.

97. Garbage solids so disposed of will increase the gas and fertilizer production at the central sewage treatment works.

98. Because grinding of garbage to the sewers presents what appears to be a most appropriate method of disposal the practice of separating garbage from other refuse at the household should be continued.

Home Garbage Grinders

99. The rapidly increasing number of home garbage grinders in the district area is testimony to the usefulness and convenience of this innovation.

100. It is stated by those who produce home garbage grinders that about 10 percent of all the homes tributary to the district's system are so equipped.

101. The increase in total B. O. D. and suspended solids of residential sewage, because of grinding garbage to the sewers, may be respectively, 47 and 39 percent. The increase in flow is hardly measurable.

102. No major economies in garbage collection will accrue from the installation of home garbage grinders until entire areas are equipped with them and garbage collection is no longer necessary.

103. It would probably be inadvisable for the districts, as such, to finance or install home garbage grinders. However, the district might act as agent for the home owner and thereby secure the lowest cost and the best maintenance.

104. Home garbage grinders cannot be justified on the basis of economy alone.

Garbage Grinding Trucks

105. It may be possible to develop a garbage collection truck which will incorporate the feature of garbage grinding and subsequent discharge from the truck directly to a sewer.

106. The use of such a truck would probably be limited to the semirural areas in the sanitation districts where population density is low and homes far apart.

107. The use of such a truck would greatly minimize the travel time to transfer stations or other points of disposal.

Garbage Feeding to Hogs

108. Garbage from 31 percent of the cities in the United States with populations over 5,000 is wholly or in part fed to hogs, but the practice is on the decline.

109. Hog ranches or hog feeding pens are not adaptable to urban areas, particularly when garbage comprises the feed.

110. There are 13 hog ranches in the district area or immediately adjacent to it.

111. Neighboring counties effectively prohibit by law the establishment of garbage feeding hog ranches within their boundaries.

112. It is felt that the Newhall-Saugus or Mohave Desert areas of Los Angeles County are the only remaining locations appropriate to garbage feeding of hogs and that the Newhall-Saugus area is about the practical limit for hauling the garbage.

113. Transportation of garbage from the district areas through a half dozen or more municipalities to the Newhall-Saugus area will probably add to traffic difficulties, odor problems, and may pose a health menace.

114. Air-tight transfer vehicles accelerate the decomposition of garbage, producing particularly offensive odors and, to some extent, reducing its food value.

115. Trichinae are 10 times as prevalent among garbage-fed hogs as among grain-fed hogs.

116. The United States Public Health Service estimates that one in every six persons in the United States is infected with trichinae.

117. Pasteurization of the garbage by cooking prior to feeding would probably render it unfit for hog food because of the high percentage of citrus wastes, which the hog will not eat.

Composting

118. Processes developed in other lands for composting refuse have been difficult, if not impossible, to transplant to the United States. Reasons for the difficulty are not well known.

Salvage

119. Notwithstanding the above, there are strong indications of possibilities for combining economical disposal with the salvage of organic matter.

120. Preliminary and inconclusive findings indicate that the composting of garbage may be accelerated by seeding with digesting sewage sludge.

121. The salvage of waste material reclaims for use that which would otherwise be lost and conserves disposal facilities.

122. Much of the commercial combustible waste in the area is directly salvaged. Negligible amounts of residential combustible wastes are subject to salvage.

123. The salvage of noncombustible refuse in Los Angeles County is well organized and controlled almost exclusively by one company.

124. Salvage of tin cans from the district area does not look promising.

125. Maximum return is realized from garbage as hog feed, but for valid reasons this form of salvage will probably be discontinued.

126. Substantial salvage in fertilizer and combustible gas results from grinding garbage to the sewers.

127. Reduction of garbage with reclamation of grease and fertilizer has fallen into disuse wherever tried. Currently, it is of doubtful economic value.

128. For valid reasons it is believed that the salvage of combustible and noncombustible refuse should be through private enterprise under district supervision.

Part III—Disposal of Refuse

CHAPTER 3—SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS FOR A DISTRICT PLAN

129. If a district plan for the disposal of refuse is inaugurated the following recommendations are made:

(a) That the districts purchase the City Terrace, Palos Verdes and Baldwin Hills major disposal sites.

(b) That noncombustible refuse and garbage be collected throughout the district, but that collection of combustible refuse be limited to areas where the population equals or exceeds six per acre.

(c) That combustible refuse not subject to salvage be buried at landfills until incinerators are constructed at which time they should be incinerated at high temperatures.

(d) That transfer stations be constructed for appropriate use during the interim period and, eventually, for the transfer of noncombustible refuse only.

(e) That collected garbage be hauled to central grinding stations and disposed of as a slurry into the district's sewage system.

(f) That garbage grinding stations strategically located, so as to minimize length of haul, be construtced in the district.

(g) That in the interim period before the district plan can be put into full operation, the district supplant the public agency in contracts with private collectors until such contracts expire and extend the service to at least that which is intended as basic to the district plan.

Part IV—District Participation in Collection and Disposal of Refuse

CHAPTER 1—FACTORS INFLUENCING

130. Increasing difficulties in refuse disposal in the district area led to amending the districts' enabling act to permit refuse collection and disposal to become a district function.

131. Unlike the sewerage of the districts, refuse collection is not well integrated, largely because refuse collection and disposal does not pose the acute health problems that does sewage collection and disposal.

132. Refuse collection and disposal is allied to sewage and industrial waste collection and disposal, particularly in the garbage field.

133. The districts are already operating in the field of refuse collection and disposal to the extent that about 10 percent of the district homes are said to be equipped with garbage grinders.

134. It is possible that economies may be effected by combining the sanitary services of sewerage and refuse collection and disposal under a single supervisory organization.

135. Under the district-wide plan the district directors who represent the cities will be able to control refuse collection and disposal in their city environs as well as in the cities.

136. Disposal contracts with private operators are universally short-term, thus effectively limiting the investment by the operator in collection or disposal equipment.

137. The basing of a contract for garbage collection and disposal upon the price of pork lends a degree of uncertainty that is many times reflected in the service.

138. Should the practice of feeding garbage to hogs be abolished the costs for garbage collection by private contractors would immediately increase 50 to 100 percent.

139. Estimated costs for garbage collection and disposal by the sanitation districts reflect the cost of garbage disposal by incineration or through central garbage grinding stations to the sewers and not upon its use as hog feed or by disposal to sanitary fill.

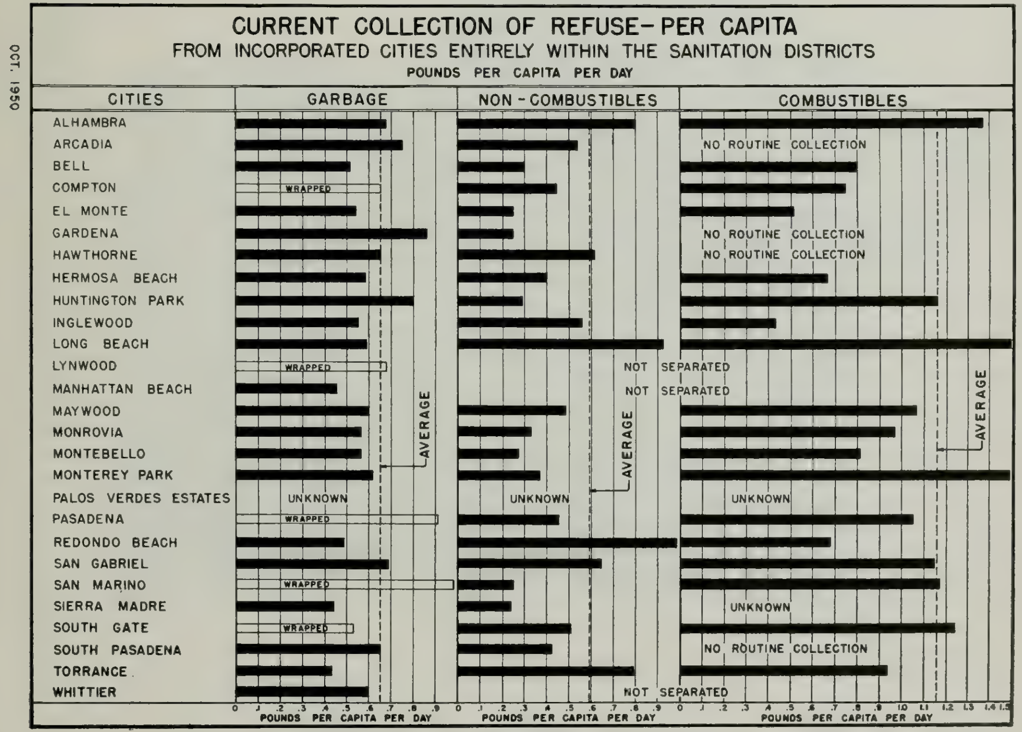
140. The restrictions existing or foreseeable in the collection and disposal of refuse in the district area will require large sums of money for capital investment and it appears almost inevitable that adequate refuse service in the district area can only be obtained by some sort of cooperative enterprise.

141. District participation in the refuse field can make available the vast bonding capacity of the district.

142. To make possible the construction of disposal facilities it will be impossible or impracticable to finance with private capital.

143. The annual cost of district participation in the refuse field may be collected as an ad valorem tax upon the real property of the district in the same manner as is now employed in the sewerage field.

CURRENT COLLECTION OF REFUSE PER CAPITA



SOURCE: "Report upon the collection and disposal of refuse," Los Angeles County

Part IV—District Participation in Collection and Disposal of Refuse

CHAPTER 2—ENABLING LEGISLATION AND METHODS OF FINANCING

144. The sanitation districts derive their authority for entering the refuse collection and disposal field from amendments to Chapter 3 of the Health and Safety Code adopted by the California Legislature in 1949.

145. The authority to build and operate a refuse collection and disposal service in the districts is clearly indicated in the amendments.

146. The need for action in the matter indicates that capital construction costs may be best defrayed by issuing bonds.

147. Capital investment as used in this report covers the cost of vehicles, field works, garages and shops, transfer stations, incinerators, disposal sites, garbage grinding stations, additional sludge digestion tanks and sludge drying beds or facilities.

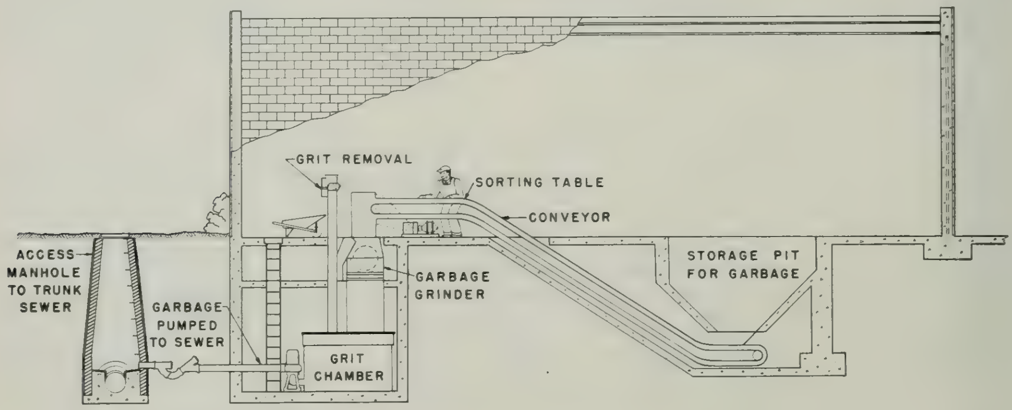
148. It is believed that 40-year bonds will be most appropriate for financing purposes.

149. There appears no logical way in which to exclude those with garbage grinders in their homes from the general district charge made for garbage collection.

Part IV—District Participation in Collection and Disposal of Refuse

CHAPTER 3—FACTORS AND COSTS OF REFUSE COLLECTION AND DISPOSAL BY DISTRICTS

150. This chapter presents a summary of the district proposal and a cost estimate for each of the districts for two methods of collection and disposal. Findings for this chapter would be merely a reiteration of findings from previous chapters, and findings from costs could be no more brief than the text itself. The reader is referred to the text.



TYPICAL GARBAGE GRINDING STATION

TYPICAL GARBAGE GRINDING STATION

SOURCE: "Report upon the collection and disposal of refuse," Los Angeles County

APPENDIX NO. 14

CIRCULAR 166
APRIL 1950

THE GARBAGE HOG FEEDING BUSINESS

IN CALIFORNIA

- **WALLACE SULLIVAN**
- **EARL MAHARG**
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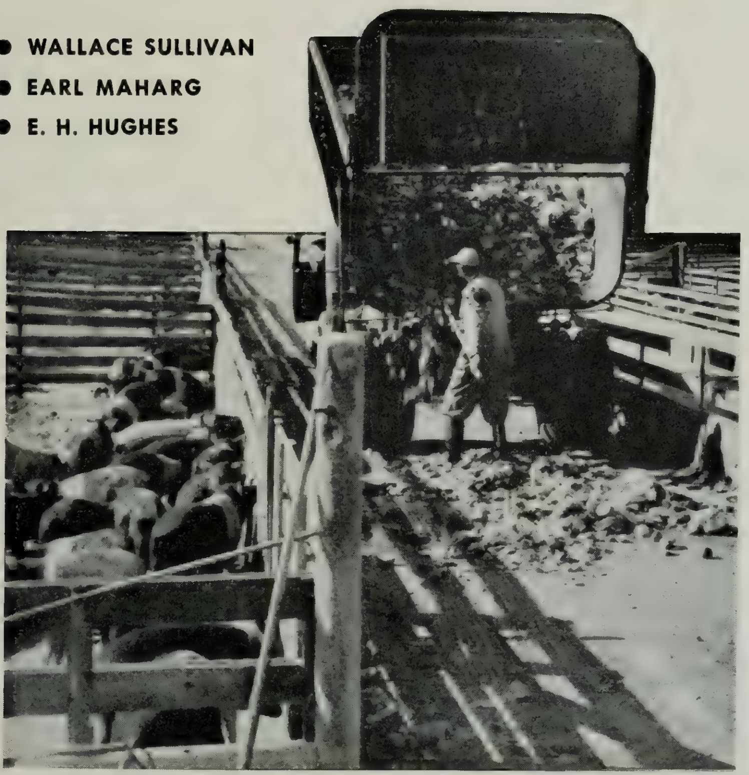

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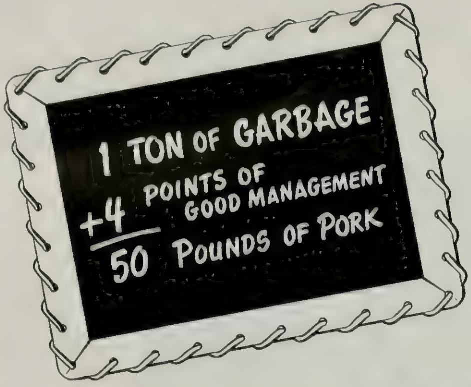

This Circular

is the result of a 3-year management study of successful garbage hog feeding establishments in southern California. It explains and gives suggestions on the points of good management that can make the above equation work satisfactorily. These are the points covered:

- Laying out the feeding lot so that a minimum of time and motion is used in performing the necessary chores.
- The elements of good breeding management—keeping the breeding and feeding herds in balance with the amount of feed available. Lowering the mortality rate in farrowing.
- Keeping costs in line by balancing labor and feed with the size of the herd—cutting corners where possible.
- Maintaining accurate records that will point out management errors and show where the money is going.

This is NOT a book on animal husbandry. Better details on hog raising will be found in Extension Circular 15, Pork Production in California—Hughes and Heitman. Revised 1949.

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Garbage Going to Waste

or to "Waist"

DURING the last 83 years, the number of hogs on farms in California has remained relatively constant at somewhere around ¾ of a millon. About 40 per cent of these pigs are now fed on garbage feeding establishments.

During this same period the human population of the state has grown tremendously and is now estimated to be about 10.5 million. It is also estimated that from 1 to 1½ pounds per day of usable garbage (i.e., scraps of food) per person are thrown into garbage cans or go down the drain from private homes, restaurants, hotels, institutions, food factories and armed services camps.

It has been pretty well proven that 1 ton of garbage will produce approximately 50 pounds of pork.

Thus it is easy to see that millions of pounds of valuable hog feed are produced daily in California and that only a small percentage is being utilized. In many cities no effort is made to utilize residential garbage. Instead of going to waste, this valuable hog feed could be used to put a larger "waist" of solid, edible pork on the hogs.

The California Crop and Livestock Reporting Service made a count of garbage feeding establishments in both 1947 and 1948 and found that the number of such establishments increased from 355 to 417 during the year. They estimate that about 40 per cent of all slaughter hogs raised in the state are now garbage fed.

The 1947 survey showed that most of the feeding lots were located near the two large centers of population, Los Angeles and San Francisco. The later survey showed an increase in the establishments located near smaller towns and cities.

The Arrangement "Just Grew"

The arrangement between garbage disposal authorities and the hog feeders "just grew"; garbage disposal was the primary job, and hog feeding was incidental. But hog feeders are realizing more and more the feeding value of table scraps and edible waste material from homes, food plants and large institutions. There is a definite opportunity in converting what would be a total loss into a useful and profitable product.

The Topsy-like growth of the industry has, however, resulted in certain factors that tend to retard rapid expansion—factors that could be resolved by better laws and a better understanding between the hog feeders and the state and local regulating authorities.

Better Arrangements

Are Needed

The requirements of public health and sanitation regulations are not always well defined, so many hog feeders are uncertain as to the security of their locations. New zoning ordinances, or nuisance complaints of old or new neighbors may cause them to move to new locations. Moving is expensive. This lack of security in tenure encourages temporary and inadequate construction of sanitary facilities.

Greater stability in regulations would encourage good construction that would satisfy sanitary and health regulations.

Feeders are not always certain that their garbage hauling contract (a vital factor in the business) will be renewed when it expires. The development of model ordinances regulating the collection and disposal of garbage, that could be used throughout the state would tend to greater stability and understanding.

Much could be gained for all parties concerned by conferring together on improved methods of garbage collection and disposal, and clarification of what constitutes a nuisance in regard to garbage feeding.

During the period 1945–1948, the Agricultural Extension Service and Experiment Station of the University of California, coöperating with the California Hog Feeders Association of Los Angeles and the Los Angeles County Farm Bureau, made a study of management practices on several large garbage feeding establishments in southern California. On these lots were 3,132 brood sows (years) that farrowed 42,274 pigs that produced 5.5 million pounds of pork.

The remainder of this circular presents the findings covering inputs of feed, labor, material and capital, costs and production of pork as determined from the study. The results and recommendations given here will apply generally to all parts of the state.

The Basic Needs

Must Be Considered

There are certain over-all factors of location and nuisance control that must be considered in any garbage feeding establishment.

What about location? Obviously, it is necessary to locate a feeding lot as close as possible to an adequate supply of garbage. This usually means within a reasonable hauling distance of a city or town, yet far enough from the center of population to avoid the possibility of being declared a nuisance and being forced to move. Moving is expensive, since very little of the equipment can be taken or salvaged.

In choosing a location, a balance must be struck between:

1. Hauling costs.
2. Proximity to population centers.
3. Land costs.

Since new methods of controlling flies and odors are now being used, and more are certain to be developed, perhaps the nuisance factor will tend to diminish in the future.

In any location, however, the feeder should take particular care to control flies and odors, and to keep abreast of local developments as well as possible. Mutual friendship with the local health and sanitation authorities is recommended.

The garbage contract should be given careful consideration, as a dependable supply of feed is extremely important.

If the feeder does the collecting he may be paid a fee for such work.

If the municipality makes the collections and delivers to a collecting depot, the most suitable plan seems to be a sliding scale payment schedule. This scale works both ways: when the price of hogs about equals the cost of production, no charge is made by the municipality; as the price of hogs goes above this point, an increase in the price of garbage is made with each increase of $1.00 per hundredweight in the price of hogs. If the price of hogs goes below the cost of production, the municipality pays for having the garbage hauled away from the collecting point.

It is well to have the garbage contract cover other specific points such as:

1. Whether the nonedible refuse shall be separated from the edible, and who is responsible for the separation.

2. Where the title to the garbage changes hands.
3. The terms by which the contract may be cancelled.

The help of an attorney in drawing up the contract would be useful.

Size of feeding unit is important. In determining the size of the feeding unit, three items of cost should be considered in the order of their importance. Feed is the most important item; hired labor is second, and capital investment in land, equipment and improvements, third.

Thus the number of hogs to be fed would be determined primarily by the garbage contract, or the tons of garbage available during the year. These studies indicate that 35 tons per brood sow, per year, would be a safe figure to use in making a preliminary estimate. The number of hogs fed would be adjusted by experience. The quantity of garbage required will vary widely, depending on the grade and quality obtainable.

From the standpoint of labor utilization, assuming that most of the labor is hired, a 100-sow unit would be the minimum size for reasonable efficiency. This would require one full-time herdsman, supplemented with extra help as needed. The hauling of garbage would be contracted, or a truck driver would be hired by the hour or by the load.

The capital investment per sow unit would decrease as the number of sows increased; certain items such as rolling stock, water supply, housing and storage, and cleaning equipment remain almost constant, or would increase only slightly for 100 sows rather than 50 sows. So here again, it appears that a 100-sow unit would be about the minimum size for reasonable efficiency.

What it Takes
To Get Into Business

A 100-sow unit would require a garbage contract that would yield 3,500 tons of garbage per year, or about 9.5 tons per day.

In addition, the hog feeder must acquire land, buildings and fences, certain equipment, feed and supplies, a water system and, of course, stock. A fairly graphic idea of the various facilities needed can be obtained by study of the pictorial representation of typical efficient garbage feeding establishments shown on pages 10 and 11 in this circular. An idea of the costs involved is as follows:

Investment and Costs. A 100-sow unit would probably require a minimum of 2 acres of land. Improvements would include the following:

1. Cement feeding floors and driveways, with adequate slope and drainage facilities.
2. A watering system to provide drinking fountains for the stock and hydrants for washing down the feeding floors.
3. About 35 individual farrowing pens with feeding floors and small exercise yards in the back.
4. About 12 feeding pens with feeding floors, shelter sheds and exercise yards.
5. A loading chute and loading platform for finished hogs.
6. Fencing, consisting mainly of movable panels and gates.
7. Housing for hired help and a building or buildings for storage of feed, equipment, supplies, rolling stock—possibly office space.
8. A small tractor with loading scoop and spray rig attachment.

Table 1 represents a fair estimate of the cost of land, improvements, equipment, etc., based on 1948 prices, for a 100-sow unit.

TABLE 1. Estimated Investment.

Item	Original Cost	Avg. Invest.	Int. Chg. 5%	Deprc.
		Dollars per sow per year		
Land—2 acres	$ 1,000	$ 10.00	$ .50	......
Bldgs. and fences	16,000	80.00†	4.00	$ 16.00
Equipment*	4,000	20.00†	1.00	4.00
Feed and supplies	400	4.00	.20	......
Well-water system	10,000	50.00†	2.50	5.00
Subtotal	31,400	164.00	8.20	25.00
Stock—average all ages	21,770	217.70	10.89	......
Total	53,170	381.70	19.09	25.00

* Does not include garbage hauling truck.
† One-half original cost.

The Layout Must Be Efficient

The most successful feeding lots are laid out for "production line" operation. The idea is to keep related units together and to provide a more or less continuous flow of animals toward the ultimate goal, the loading out platform. To this end, breeding pens, farrowing pens, dry sow pens and feeding pens are laid out so that the young pigs pass from one to the other with a minimum of waste motion as they progress toward maturity.

In like manner, the feeding facilities are laid out and constructed so that distribution of the food and clean-up chores may be done on a straight line operation.

Here again the reader is referred to the pictorial presentation of efficient establishments studies in southern California.

The Sow is the
Breeding Unit

The first objective of the feeder is to obtain good, healthy feeder pigs with which to convert garbage into pork.

This may be done by the purchase of feeder pigs, but most commercial men have found it unsatisfactory to depend on the uncertain market for feeder pigs. Then too, there is a danger of the introduction of swine diseases and the difficulty of getting the pigs adjusted from grain to garbage feed.

So while the maintenance of a breeding herd increases the number of unproductive hogs that must be fed, it is still probably the best way to procure the largest number of salable pigs at the lowest cost. Table 2 on page 8 shows the distribution of animals by age and class as they would probably average out during the year.

The first 4 classes make up the breeding herd. A fairly well-managed herd should not have over 30 per cent of the total swine units in the breeding herd. As this percentage goes down, efficiency

TABLE 2. Distribution of Animals on Typical 100-Sow Unit.

Class	Number	Swine unit*	Total swine units	Per cent of total
Sows	100	1.0	100.0	22.92
Boars	5	1.0	5.0	1.15
Gilts	10	1.0	10.0	2.28
Pigs—unweaned	173	.1	17.3	3.97
Subtotal—breeding herd	288	.....	132.3	30.32
Feeders—under 100#	260	.4	104.0	23.84
Feeders—over 100#	250	.8	200.0	45.84
Total	798		436.3	100.00

* Calculated feed requirements, based on unit of 1.0 for a mature hog.
Source: Los Angeles County Enterprise Studies—1946-48 calculated.

goes up and costs per pound of finished pork go down.

Inefficiency is usually due to:

1. Keeping more boars than is necessary.
2. Keeping sows that do not produce regularly because they are shy breeders, lose their pigs through abortion or diseases, or produce weak, unhealthy pigs.

There Are Two Farrowing Systems

As pointed out, one of the all-important factors in reducing costs is to keep only sows that farrow and raise to a weaning age, regularly, large litters of healthy pigs. Either of two farrowing systems may be used; the one-litter system or the two-litter system.*

The One-Litter System. In the one-litter system only the gilts (young, immature, unbred sows) are bred. The sow then goes into the fattening pens with her litter and is marketed as a fat hog.

The advantages of this system are that there is very little if any dockage (reduction in price due to unmarketable qualities) on the sow when sold, and that the length of time of keeping a sow for each litter is shortened. This reduces the cost of maintaining the breeding herd.

The Two-Litter System is more commonly used. In this system the sows in the breeding herd are expected to farrow two litters of pigs each year. Therefore only those sows that are proven to be good breeders and good mothers are kept in the breeding herd.

In order to get two litters per year the herdsman must make sure that each sow is bred during the first or second heat period after the pigs are weaned. It is easy to see the importance of this in reducing costs; a sow that is neither being fed for slaughter nor producing more pigs is "dead weight."

Obviously, sows farrowing twice a year will produce twice as many pigs as sows farrowing once a year—other factors remaining constant. In other words, 100 sows bred twice a year can be made to produce as many pigs as 200 sows bred once a year. Thus having two litters per sow, per year, will enable the operator to cut down the size of the breeding herd—greatly reducing the cost per pig at weaning time.

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* For more detailed information on the breeding and raising of pigs, control of diseases, etc., the reader may refer to Extension Circular 15, Pork Production in California, E. H. Hughes and Hubert Heitman, Jr., Revised 1949.

But What Counts is the Number of Pigs Raised

The payoff, of course, is the total number of pigs raised to maturity or sent to market. The returns from these must pay the bills for those that are lost, maintain the breeding herd, and provide a living for the owner. This is important when we examine figures that show the average number of pigs saved from the average number that are farrowed on typical feeding establishments.

A study of the figures compiled from 7 records in the swine enterprise study in southern California, covering over 3,000 brood sows and over 5,600 litters showed that the sows averaged 1.8 farrowings per year, with an average of 7.5 pigs per litter. But of the average of 7.5 pigs farrowed in each litter, an average of 3.5 died and only 4 lived to a marketable age. *Of the average of 13.5 pigs farrowed by each sow during a year (under the two-litter system) only 7.3 pigs ever lived to reach a marketable age.*

The average loss therefore was over 45 per cent—nearly half.

And this is under reasonably good management practices.

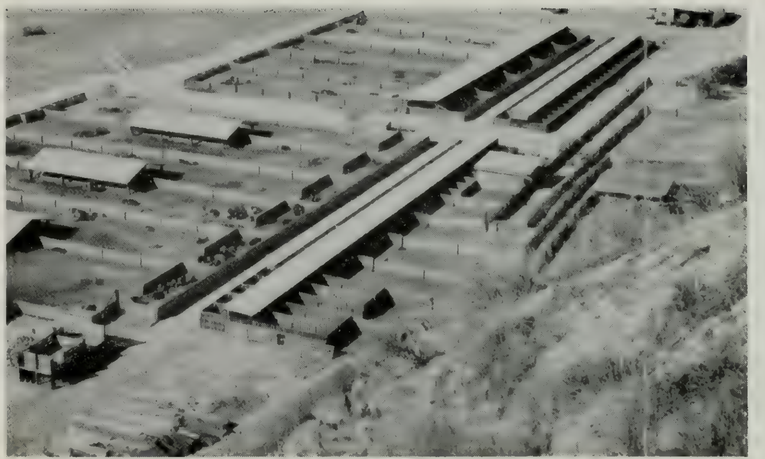
Losses Affect the Profits

Based on calculations shown in table 5 (page 17) it is estimated that the total costs per sow year amount to $269.22. The cost of the breeding herd is about 30 per cent of the total. And 30 per cent of $269.22 is $80.77—the cost per sow year for one brood sow.

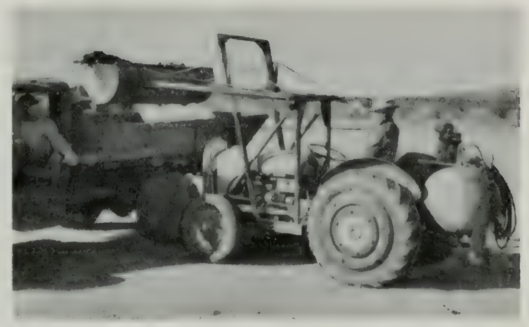
With an average production of 7.3 pigs per year for each brood sow, the cost per pig at weaning age would be about $11 per head. If 10 pigs, instead of 7.3 had been raised, the cost per pig at weaning age would have been about $8 per head.

It is evident that the cost per pig at weaning age decreases rapidly when the number of pigs saved per litter is raised.

This is a typical water fountain device used on a garbage feeding establishment. Water is kept available for all animals, at all times. Note the shade shed in the background, designed to cover parts of 2 pens. See pictorial section in center foldout.



1. Here is a well laid out garbage feeding establishment where "straight line operation" is the rule. Closer views of some of the construction and operational details are shown below.



6. Waste material is hauled to another dump truck for final disposal. Much of this waste material can be used for fertilizer by orchardists in some parts of the state.

Here are 6 steps of garbage feeding, carried out in a "straight line" operation on a well laid out establishment. Planning such as this helps to keep down costs and produce pork at favorable prices. See chart on foldout sheet in center.

2. The garbage is hauled from its source in dump trucks and unloaded onto feeding floors in a continuous operation.

3. Here the garbage is spread out on the feeding floors, ready to be worked over by the hogs. The gates will act as fences.

4. The gates are opened, closing off sections of the feeding floors and allowing the hogs ready access to the garbage in their areas.

5. When the hogs have cleaned out the edible material, a tractor "loader" picks up the remaining material and moves it away.

PRODUCTION LINE LAYOUT CUTS WASTE MOTION • • • HOLDS DOWN COSTS

So Keep Losses Down to a Minimum

By Good Breeding Management. Assuming that a feeder has a contract that will yield 3,500 tons of garbage per year, and that this yield is distributed evenly throughout the year, his next problem is to have an even supply of feeder pigs throughout the period.

A 100-sow breeding herd that would average 1.8 litters per year would produce 180 litters per year—3.5 farrowings per week, or 15 to 18 per month. For this average, a minimum of 5 boars should be kept.

Individual breeding pens should be kept so that the sow can be turned in with the boar as soon as she comes into the first heat after the pigs are weaned. The bred sow should then be turned into the dry sow pens, the first of which is called a "catch" pen, in which a boar is kept.

The sows should be kept in this "catch" pen for 3 or 4 weeks, so that in case they did not get with pig in the breeding pen, the "skip" boar will settle them on the second heat period.

From the time they show signs of being with pig, the sows should have their garbage feed supplemented with a pound of grain per head, per day, and alfalfa hay provided in a rack. (See below.)

A day or two before farrowing, the sows should be moved into an individual, clean, disinfected, farrowing pen. The sow and her pigs are then kept in this pen for 8 or 9 weeks.

At the end of this time the pigs should be vaccinated for cholera (the male pigs having been castrated), and all put into feeding pens with others of the same age and weight. Usually 75 to 100 of the light feeders are kept in the same pen; as they increase in weight they are sorted. The cripples and weak ones are put into a hospital pen and given special treatment. The number per pen is reduced as the pigs get larger so that when finished, at about 225 pounds, there are about 40 or 50 to a pen.

Feeder hogs are usually fed nothing but garbage, unless there is some special reason for other feed.

By Supplemental Feeds. In the search for some way to reduce the very heavy death losses in young pigs, feeding experiments were conducted in Los Angeles County. It was thought that the sow, during the time of gestation and nursing of the pigs, was not getting enough energy from garbage alone to produce strong, healthy pigs.

The sows experimented with were fed 1 pound of supplemental (grain) feed per day, for a period of 100 days, overlapping the gestation and nursing periods. The results showed that the sows fed the supplementary diet of grain raised one more pig per litter to weaning age (about a 25 per cent increase) than sows kept on a straight garbage diet. The pigs from sows fed supplementary feed were more vigorous and averaged from 1 to 2 pounds heavier at weaning age.

The additional cost of the supplemental feed was more than offset by:

1. A reduction in the amount of garbage fed.
2. An increase of 25 per cent in the number of pigs raised to weaning age.

The results of the experiment also indicate that by supplemental feeding 75 sows could be made to produce as many pigs as 100 sows would produce on a straight garbage diet. Or putting it another way, 100 sows would produce 25 per cent more pigs, considerably reducing the cost per pig at weaning age.

Watch the Labor Input

The management study showed a large variation in the number of man hours per sow year needed to operate efficiently. The 7 records kept ranged from a high of 73.7 man hours per sow year, to a low of 38.6, with the average being 54.5.

One of the most important factors in reducing the number of man hours per sow is to keep in the herd the maximum number of sows that a man, employed full time, can take care of adequately. If a full-time employee cares for 75 sows when he could care for 100 in the same time, the labor cost per hundredweight of pork would be considerably reduced by having the larger number of sows.

Another important factor is the layout of the feeding yard (see pictorial presentation). The general plan of driveways, feeding floors, farrowing and feeding pens, water system, movable panels and gates are all important details in saving time and labor.

Keep Adequate Records

The hog feeder should be asking himself two questions constantly: how much profit is this enterprise making? and how can the profit be increased? The second question can not be answered until the answer to the first is known. Neither question can be answered unless records are kept that furnish adequate information.

This means keeping more records than those of cash receipts and expenditures—they tell only part of the story. Records of the physical input of feeds, materials, capital, man hours of labor—records of output and facts affecting it are also essential. Individual sow production records should be kept so that poor producers may be eliminated.

Closeup of the feeding floors with pigs feeding. Note graduation in sizes of the feeders, from small (in the near pen) to finished pigs in the background.

An annual balancing of input with output, and comparison with previous years, will point out the strong and weak points in management practices.

For a suggested form to use in making a monthly hog inventory, and keeping an account of farrowings, death losses and changes in hog numbers during the month, see page 18.

This inventory form, if properly filled out, will give the operator an accurate figure for the number of animals he should have in each class at the end of any given period. If this number does not check with a physical count made at that time, something is wrong. If the physical count shows more animals than should be there, the error is probably in the count, or in bad record keeping during the period. If there are fewer animals than there should be, the error may be one of record keeping, or a result of dishonesty—perhaps pilferage.

In any event, the written record gives the operator a basis on which to make inquiry and seek out the trouble.

Some Figures
to Go By

Feed Inputs. Table 3 shows the amount of feed used per brood sow year, as reported in the management study in the 7 Los Angeles County enterprises.

All but one reported feeding alfalfa hay as part of the diet. All reported some grain or concentrated feed.

Based on calculations made during the study, a ton of garbage with a small amount of grain supplement, for sows and unweaned pigs, will produce about 50 pounds of pork. This includes feed that was given to pigs that died, and to sterile breeding stock.

This emphasizes again the importance of large litters, with as few losses from death as possible, to reduce the cost per pound of finished pork.

Analysis of Garbage. Table 4 presents the average analyses of a large number of samples of garbage, many made by the California Experiment Station. Since the feeding quality of garbage varies from place to place, and from year to year, it is difficult to get a true sample of garbage. Even so, some of the points illustrated in table 4 are noteworthy.

The analysis of dried refuse, or cleanup, from the feeding floors does not vary greatly from dried garbage. This material, except for the bones, is usually spread out on adjacent concrete floors to dry, then used as fertilizer.

At the bottom of the table are digestible nutrients found in dried garbage. This garbage was from the city of Los Angeles and was estimated to be 20 per cent from hotels and 80 per cent from residential areas. The material was brought to the University of California where it was analyzed and used for a digestion trial on a pig.

A word of caution is in order on the use of this table: it indicates that the total digestible nutrients in dried garbage are similar to those in barley. Previous experiments conducted by the Experiment Station indicate that the value of dried garbage as hog feed is far below that of barley. Apparently during the drying process some of the nutrients were injured, and were not indicated in the digestion experiment.

TABLE 3. Feed Inputs.

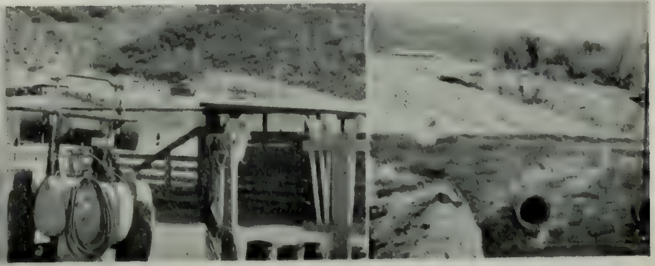
Record number	Garbage (tons)	Grains (lbs.)	Alfalfa (lbs.)
1	22.00	1010	307
2	25.93	1209	101
3	29.00	1156	149
4	36.00	226	146
5	35.00	90	....
6	22.20	386	146
7	28.63	1393	380
Average	28.4	781	176

Analysis of Costs. Table 5 may be used as a rough guide in measuring efficiency in operations, or by persons who may be considering going into the garbage feeding business. It combines table 1 (showing production), table 2 (showing investments), and some additional figures that give a fairly complete picture of where the expense money goes in a typical 100-sow feeding unit.

The figures above the line show the expected output of the herd. The figures below the double line show the average costs during 1948, in southern California, for getting into business and maintaining a herd for a year.

Some of the expenses in table 5 are estimated as follows: cost of garbage is

Closeup of a hinge used on gates that must swing out over a foot or more of garbage. Note hinge is adjustable to let gate up or down, as needed for clearance.



Left: The cleanup vehicle has a spray rig attached on the rear, for use in disinfecting farrowing pens. Cleanup tools are kept together and in a handy place. Right: Discharge end of the filter ditch that takes the run-off water from the feeding floors. The water is filtered through gravel, comes out clear and free from odor, and drains into a nearby stream.

TABLE 4. Analysis of Garbage As a Feed.

Kind	Dry matter	Crude protein	Fat	Fiber	NFE	Ash
Fresh Garbage						
Municipal*	31.50	4.98	4.82	2.15	16.06	3.50
Hotel, restaurant, hospital, etc.	23.81	4.26	5.95	0.68	13.97	1.45
Military	30.13	6.47	8.99	0.61	12.41	1.65
Dried Garbage						
Municipal	89.4	16.90	19.70	11.54	38.23	10.88
Dried Refuse†						
Municipal	91.72	17.17	18.49	16.60	34.89	12.79
Digestible nutrients in dried garbage						
Municipal	53.66	8.64	17.10	5.68	24.24	....

* A mixture of hotel, restaurant, hospital and residential garbage.
† Taken from feeding floors, including refused garbage, feces, urine, some metal; bones removed before sampling.

figured at $2 per ton, and hauling at $1.50—total $3.50 delivered at the feeding plant; all labor is charged at the rate of $1 per hour; the annual interest charge is based on 5 per cent of one-half of the original cost of the improvements, and the full cost of the land, feed supplies and hogs. Depreciation charge is made on the improvements and facilities based on the length of their useful lives.

The profit formula is:

Yield (pounds of pork produced) × Price per pound – Costs = Profit (or Loss)

Actually, the net profit will depend on both controllable and uncontrollable factors. The price paid for hogs, the cost of feeds and materials and the wage scale for hired help are probably not controllable by the operator. They are changing constantly and many risks are involved.

However, yield may be controlled to a certain extent, and costs can be kept at a minimum by good management practices, as explained in the foregoing pages. All other things being equal, good management practices will result in more profit and avoid the danger of losses.

TABLE 5—on page 17 combines the estimated investment figures and estimated costs for one year and may be used to arrive at an estimated figure for the cost of pork per hundredweight on a hypothetical 100-sow garbage feeding establishment. As stated, these figures are estimates and are based on prices as they prevailed in one part of the state, during one year. They also assume that good management practices, as outlined in this circular, have been observed.

Production estimates for 100 brood sows	Avg. during year	Added during year	Transfrd. to next group	Death losses	No. available for sale	Lbs. available for sale
Boars	5	2	....	.2	1.8	720
Sows (1.8 litters)	100	40	....	5.0	35.0	12,250
Pigs—unweaned (7.0 per litter)	173	1,260	819	441.0	....	.....
Feeders—weaning age to 100#	260	819	778	41.0	....	......
Feeders—100# to 225#	250	738	....	39.0	699.0	157,275
Gilts 6-12 mo. (replacements)	10	40	40	....	....	......
Total	798	2,899	1,637	526.2	735.8	170,245
Net production, less 2 boars bought—500 pounds						169,745
Quantities and costs		Pounds required		Costs per ton or cwt.	Costs per sow year	Costs per cwt.
		Per sow year	Per cwt.			
Garbage (3,500 tons per year)		70,000	4,124	$3.50	$122.50	$ 7.21
Grain (27,000# per year)		270	16	3.00	8.10	.48
Pasture						
Other						
Total feed					$130.60	$ 7.69
Total labor (6,000 hours)		60	3.54	$1.00	60.00	3.54
Sub-total labor and feed					$190.60	$11.23
Other cash costs						
General expense (5% labor and feed)					9.53	.56
Taxes and insurance						
Veterinary and sanitation					25.00	1.47
Miscellaneous						
Total cash costs					$ 34.53	$ 2.03
Subtotal cash operating costs					$225.13	$13.26
Investment	New costs	Av. Invest.	5% Intrst.	Deprec.		
		Dollars per sow				
Land (2 acres)	$ 1,000	$ 10.00	$ .50			
Buildings and fences	16,000	80.00†	4.00	$16.00		
Equipment	4,000	20.00†	1.00	4.00		
Feed and supplies	400	4.00	.20			
Well and water system	10,000	50.00†	2.50	5.00		
Stock—average all ages	21,770	217.70	10.89			
Total invest. and annual cost	53,170	381.70	19.09	25.00		
Total depreciation costs					25.00	1.47
Subtotal					250.13	14.73
Total interest on investment					19.09	1.13
Total all costs					$269.22	$15.86

† Average investment is one-half of original cost.

BLANK FEEDING COMPANY

Monthly Hog Inventory

Date.................................

Ranch No................... **Period beginning**...................... **and ending**......................

Kind of hogs	Beginning inventory	Bought	Sold	Died	Trans-ferred	Ending inventory
1. Brood sows						
2. Gilts—over 6 mos.						
3. Young gilts						
4. Breeding boars						
5. Young boars						
6. Pigs—unweaned						
7. Feeders—under 100#						
8. Feeders—over 100#						
9. Cull sows, etc.						
Total						

No. sows farrowed........................ No. pigs........................

How to count:
1. All sows that have had pigs.
2. Gilts of breeding age that have not had pigs.
3. Young gilts that have been selected for breeding herd, or for sale as breeding stock.
4. Boars that are in service.
5. Young boars that are to be used in herd, or are for sale.
6. Pigs that are with sow.
7. All pigs weaned, up to 100 pounds.
8. All hogs over 100 pounds.
9. All hogs culled from breeding herd, sows, boars, stags.

The figures for beginning inventory may be taken from a physical count of the animals, or from the "Ending Inventory" column of the preceding report period. Enter figures for number bought during the period, in various classes. Do the same for the number sold and the number that died. In the "Transferred" column, enter a minus (–) figure for the number taken out of any class, and a plus (+) figure for those transferred into the class. Total the lines across and write figures in "ending Inventory" column. These figures should check with a physical count made at the end of the period.

Cooperative Extension work in Agriculture and Home Economics, College of Agriculture, University of California, and United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, and June 30, 1914. J. Earl Coke, Director, California Agricultural Extension Service.

APPENDIX NO. 15

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printed in CALIFORNIA STATE PRINTING OFFICE

L-3981 3-53 2M

CALIFORNIA LEGISLATURE
1953 REGULAR SESSION

THIRD REPORT
OF THE

SENATE INTERIM COMMITTEE ON GOVERNMENTAL ORGANIZATION

SENATOR HUGH P. DONNELLY, *Chairman*

SENATOR LUTHER E. GIBSON	SENATOR HARRY L. PARKMAN
SENATOR JACK B. TENNEY	SENATOR CLYDE A. WATSON

S. J. BARRICK, *Consultant*

Published by the
SENATE
OF THE STATE OF CALIFORNIA

GOODWIN J. KNIGHT
President of the Senate

HAROLD J. POWERS
President pro Tempore

JOSEPH A. BEEK
Secretary

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SENATE INTERIM COMMITTEE ON GOVERNMENTAL ORGANIZATION

March 6, 1953

HON. GOODWIN J. KNIGHT, *President*
and Members of the Senate

GENTLEMEN: The Senate Interim Committee on Governmental Organization **transmits** herewith its report and recommendations pursuant to the provisions of Senate Resolution 151 of the 1951 General Session.

The studies and analysis of the administrative organization of State Government conducted by this committee are a continuation of the studies initiated by the Senate Committee on Governmental Reorganization pursuant to the provisions of Senate Resolution 142 adopted July 2, 1949. The committee transmitted two reports. This report, therefore, may be considered to be the third report submitted by the Senate Interim Committee on Governmental Organization.

Respectfully submitted,

HUGH P. DONNELLY, *Chairman*
LUTHER E. GIBSON
HARRY L. PARKMAN
JACK B. TENNEY
CLYDE A. WATSON

CHAPTER 1

SUMMARY

The First and Second Reports of the Senate Interim Committee on Governmental Reorganization created by Senate Resolution No. 142 at the Fifty-Eighth Regular Session of the Legislature (1949) presented a general survey of the organization of State Government in California as it exists at the present time. The recommendations of that committee included in the Second Partial Report (1951) were of two types: (1) some proposals for changes in departmental organization, and (2) suggestions for further study of those agencies and functions where preliminary study indicated that improvements might be desirable.

The necessity for further study of the organization of State Government was recognized by the adoption of Senate Resolution No. 151 at the 1951 Regular Session of the Legislature creating the Senate Interim Committee on Governmental Organization. This resolution provides in part that:

> 1. The Senate Committee on Governmental Organization is hereby created and authorized and directed to ascertain, study and analyze all facts relating to the organization, functions, procedures, and operations of the State Government and the departments and agencies thereof, the relationship between such departments and agencies and the internal organization and methods of operation thereof, their cost to the State, the necessity or desirability of their continuance, the existence of overlapping or needless functions, the desirability of centralizing and coordinating related activities and modernizing techniques and procedures, and all facts relating to the nature, extent, efficiency, and economy of governmental activities and operations, including but not limited to the operation, effect, administration, enforcement and needed revision of any and all laws in any way bearing upon or relating to the subject of this resolution, and to report thereon to the Senate, including in the reports its recommendations for appropriate legislation.

The purpose and functions of this committee are essentially the same as those of the committee created by Senate Resolution No. 142 adopted in 1949. The principal difference is a slight change in the name of the committee. The first committee was the Senate Interim Committee on Governmental Reorganization. The continuing committee is the Senate Interim Committee on Governmental Organization.

SCOPE OF REPORT

The Senate Interim Committee on Governmental Organization has continued the study of the administrative organization of State Government started in 1949. The committee selected four principal subjects for further analysis and report. These are: (1) departmental coordination, (2) departmental unity, (3) fiscal affairs, and (4) legislative services.

Chapter 2, Departmental Coordination and Management, discusses the growth of the major departments and the need for coordination and liaison between the state agencies and the Chief Executive.

Chapter 3, Departmental Unity, discusses the internal organization of the major departments with particular attention to the Department of Employment. The organization for administration of water resource functions is also discussed in this chapter.

Chapter 4, Fiscal Affairs, discusses three specific aspects of the administration of the fiscal affairs of the State. These are: (1) post-audit, (2) tax appeals, and (3) investment of state funds.

Chapter 5, Legislative Services, presents a summary of the legislative service aids provided in California and the other states.

The appendix includes a summary table of the fiscal management practices in the 48 states and a summary of the various officials responsible for the determination of the accounting systems, preaudit, and internal audit functions of the 48 states.

The committee is indebted to many individuals and officials of state agencies for valuable assistance in supplying information on the subjects considered in this report. Particular appreciation is expressed to the Department of Finance for assistance in the preparation of the charts included in this report and to Dr. Samuel C. May, Director, Miss Marion Roth and Mr. Carl G. Uhr, Public Administration Analysts, of the Bureau of Public Administration, University of California, for compiling the data on ''Fiscal Management Practices in the Forty-eight States.''

FINDINGS

The principal findings of the Senate Interim Committee on Governmental Organization are as follows:

1. The organization of State Government is only indirectly related to the cost of state operations. The growth of the population and the resultant increase in need for state activities plus the transfer of functions from the local to the state level are important factors determining the amount of state expenditures.
2. Efficiency in the administrative organization of State Government effects economy in state operations although the savings effected by efficient organization are not always apparent because of the continuous expansion of state activities.
3. Expansion of the number of departments and agencies of State Government presents crucial problems of executive control and coordination.
4. The organization of some of the major departments does not conform with the principle of departmental unity. All of the divisions of the Departments of

Employment and Natural Resources, for example, are not under the direct control of the departmental directors.

5. The important functions of administration of the water resources of the State are now assigned to some 29 state agencies including seven major departments and 13 independent boards and commissions.

6. A recent and pronounced trend in state organization is the responsibility for and control of postaudit functions by the Legislature in the interest of objectivity and administrative independence.

7. Appeals from state tax assessment decisions in California are now decided in the first instance by the agencies making the tax assessments. No provision is made for administrative appeals from decisions of county boards of equalization relating to the valuation of property for tax purposes.

8. Responsibility for the investment of state funds is divided among several agencies and independent boards.

9. The rapid increase in the population and the resultant increase in the number of problems confronting the Legislature required provision for staff assistance. The Legislature has provided for a number of service aids for technical problems of bill drafting, code revision, interstate cooperation and budget analysis. Some provision is made for legislative research services by staff agencies with other responsibilities.

RECOMMENDATIONS

The principal recommendations of the Senate Interim Committee on Governmental Organization are as follows:

1. **The organization of the Department of Employment should provide for a director appointed by the Governor. Division chiefs should be appointed by and be responsible to the director.**

The Unemployment Insurance Act now provides that the Director of the Department of Employment shall be appointed by the Governor from the membership of the California Employment Stabilization Commission and that the director shall act as chairman of the commission. This act also provides for two division chiefs to be appointed by the Governor. One of these is the director of the department and the other is the deputy director. The deputy director is also a member of the commission. Senate Bill 1476 provides that the director and deputy director would be replaced as members of the commission by two members appointed by the Governor. The Director of Employment would be appointed by the Governor and would be an ex officio member of the commission. The director would also appoint subordinate officials as is now done in other departments.

2. **The state agencies responsible for water resource development should be coordinated in a Department of Water Resources.**

The responsibility for the development of the water resources of the State is now divided among several departments and agencies. The importance of water in the economy of the State suggests the need for coordination of these activities in a Department of Water Resources.

3. **The post audit functions of State Government should be administered by an auditor appointed by and responsible to the Legislature.**

The post audit of the fiscal operations of State Government is a check on the State's financial record after all transactions have been completed. The primary requirement for an adequate post audit is objectivity; it must be performed independently of the agency being audited. The post audit function is now performed by the Department of Finance. The transfer of the post audit function to an auditor appointed by and responsible to the Legislature would provide for independence and objectivity which is lacking in the present system.

4. **A Board of Tax Appeals should be established to provide a means of impartial determination of appeals from tax assessments.**

The State Board of Equalization now hears appeals from decisions of its several tax assessment divisions and also hears appeals from the administrative decisions of the Franchise Tax Board. Since two members of the Franchise Tax Board are also members of the State Board of Equalization, this board, in effect, hears appeals from its own decisions. The Board of Tax Appeals should also have authority to hear appeals from county boards of equalization on questions involving the valuation of property for tax purposes. This authorization could be provided by the adoption of a constitutional amendment.

5. **The investment of state funds should be centralized with an investment board and investment officer responsible for all negotiations for investment transactions.**

The determination of amounts of state funds to be invested, selection of type of security, and actual negotiations for investment transactions are now functions and activities of several state agencies. Coordination of policy and centralization of all negotiations would simplify investment procedures and provide for the application of sound investment principles in the investment of all state funds.

6. **Legislative research services should be a major activity of the Legislative Staff.**

California and other states have found that a number of legislative services are necessary to provide assistance in meeting the increasing number of problems confronting the Legislature. Several technical services have been provided. Legislative research is performed to some extent by the Legislative Counsel and the Legislative Auditor and their assistants Joint Rule 37 provides that the Legislative Auditor shall provide such services for the members and committees of the Legislature and this activity accounts for a large percentage of the time of the Auditor and his staff. An alternative method which is used in other states is to provide for a Joint Legislative Research Committee to direct the legislative research program.

7. **Further study should be made of the administrative organization of State Government.**

The Senate Interim Committee on Governmental Reorganization created in 1949 and continued as the Senate Interim Committee on Governmental Organization in 1951 has found that the study of the organization structure of State Government is a continuous and long range activity. Changes in economic conditions and demands for state services require adjustment and reorganization. The Legislature needs continuous study of these problems.

CHAPTER 2

DEPARTMENTAL COORDINATION AND MANAGEMENT

In some respects, the subject of governmental reorganization is a misnomer. The organization of state agencies is a continuous process and is subject to annual legislative changes and changing administrative procedures established within the framework of constitutional and statutory provisions. Since governmental agencies are established to meet recognized needs, the extent of the governmental structure required to meet these needs is, in general, governed by the population to be served and the general economic conditions. In other words, the organization structure of the State Government must be considered within the social and economic framework of the State.

GOVERNMENTAL COSTS AND ORGANIZATION STRUCTURE

The expansion of the State governmental services is indicated to some extent by the costs of governmental operations. The ever increasing costs of State Government in California are due to the constant expansion of the population and resultant need for state services. Price level fluctuations are also reflected in the costs of governmental facilities and services. Population and expenditure data for the years 1900, 1910, and annually since 1920 are shown in Table 1.

These data show very close correlation in the data for expenditures and population for the period from 1900 to 1910 since both items increased at about the same percentage in this 10-year interval. Following World War I, governmental cost expenditures began to increase at a faster rate than the population. At first, this increase was due to curtailment of facilities and services during the war. Other increases in the cost of government from 1920 to 1930 were due in part to the transfer of governmental functions and services from the local to the state level.

The constant increase in state governmental expenditures was temporarily halted with the 1930 peak. The depression of the early 1930's was reflected in the reduction of state expenditures in 1931 and 1933. The expenditures of the State Relief Administration largely accounted for the increases in expenditures in the latter half of the decade from 1930 to 1940.

The advent of World War II was accompanied by another decrease in state expenditures in 1941, 1942, and 1943; and moderate increases through the fiscal year ending in 1946. The six years from 1946 to 1952, however, have shown an increase in state expenditures of 222 percent and a population increase of 20 percent. The cost of State Government exceeded $1,000,000,000 per year for the first time during the fiscal year ending in 1950.

Although there is an indirect relationship between the organization structure of the State and the amount of state expenditures, the governmental organization is not always affected by the amounts expended by the State since more than half of the total cost of State Government

TABLE 1

STATE GOVERNMENTAL COST EXPENDITURES AND POPULATION: 1900-1952

Fiscal year ending June 30th	Governmental cost expenditures	Population (July 1)
1900	$7,591,275	1,489,522
1910	13,389,974	2,405,620
1920	35,493,971	3,554,346
21	39,381,702	3,794,815
22	52,596,789	3,990,767
23	58,064,384	4,269,626
24	67,361,698	4,451,344
25	71,295,900	4,730,097
26	81,202,894	4,928,905
27	83,342,889	5,146,524
28	89,778,432	5,344,406
29	102,338,954	5,530,866
30	120,968,103	5,711,188
31	120,966,441	5,823,910
32	130,100,728	5,894,295
33	119,461,292	5,962,561
34	161,370,992	6,059,623
35	166,017,881	6,174,939
1936	$198,130,882	6,341,328
37	214,522,161	6,527,521
38	256,998,389	6,655,647
39	276,318,396	6,784,591
40	287,048,025	6,980,000
41	273,045,877	†7,125,000
42	263,438,354	†7,441,000
43	247,373,283	†7,541,000
44	264,139,841	†8,036,000
45	305,982,059	†8,438,000
46	327,863,757	9,548,000
47	445,386,018	9,864,000
48	654,220,707	10,165,000
49	891,788,641	10,434,000
50	1,050,642,465	10,634,000
51*	1,037,080,795	11,100,000
52	1,055,233,139	11,500,000

SOURCE: Expenditure data from reports and records of State Controller; population data 1900 through 1939 are based on United States Census Bureau estimates, population data 1940-1952 estimated by Department of Finance.

* Expenditure data changed from "cash" to "accrued" reporting.

† Civilian population estimates.

is expended for local assistance. The Governor's Budget for the 1953-54 Fiscal Year, for example, shows that the total proposed expenditures are $1,326,852,000 and the amount budgeted for local assistance is $744,069,000 or 56 percent of the total.

The Senate Interim Committee on Governmental Organization has determined that its duties are concerned with the organization structure of State Government and not with the costs or objects of expenditure. The Legislature and the voters have decided what tasks shall be performed by the State. These assigned tasks, in turn, determine the cost of governmental operations. The principle which motivates the activities of this committee, therefore, is that the organization of the state agencies should provide for the most effective performance of the functions of government established by the Constitution, the Legislature, and the voters.

It so happens, however, that interest in reorganization proposals coincides with peak costs of state operations. The experience of California in this respect is similar to that of other states. The first general trend toward the reorganization of the administrative or organizational structure of State Government began toward the end of the second decade of this century. The Illinois reorganization of 1917 established a uniform and simplified administrative system which paved the way for the adoption of consolidation programs by other states.

As noted in other reports of the Senate Interim Committee on Governmental Reorganization, the movement for administrative reorganization in California began at about the same time. The Committee on Efficiency and Economy appointed by Governor Stephens in 1918 proposed a system of departments and bureaus to replace the existing commissions. Legislation enacted in 1921 consolidated 58 agencies into five departments. Further steps in the California reorganization program were taken in 1927 when four new departments were created. Four other departments were added in 1929 and another in 1931.

Impetus for further study of the administrative structure of State Government came during the depression when the states were faced by a shortage of operating revenue and an increased demand for state services. The California Senate, for example, authorized a fact-finding committee to make an investigation of services and costs in 1933. In 1936, a state-wide Conference on Government and Taxation created the Interim Committee of Twenty-Five to study proposals made to the conference. This committee submitted its report in 1941 which recommended major changes in the organization structure of government.

The third and current phase of state reorganization proposals occurred after World War II. Such reorganization proposals were prompted in part by the activities and recommendations of the Hoover Commission—the Commission on Organization of the Executive Branch of the Government of which Herbert Hoover was chairman. ''Little Hoover Commissions'' were created in a number of states and some cities. Some states, such as California, however, had started reorganization studies which were interrupted by World War II.

The objectives of economy, efficiency, and improved service in the transaction of public business characterize all three periods of State Government reorganization programs. The principle objective, at first, was that of economy. This was particularly apparent in the reports of such studies undertaken during the depression years. The depression of the 1930's and the postwar years, however, witnessed the growth of new agencies and activities of State Government so that although economy is still one of the principal objectives, the emphasis has now shifted to efficiency and improvement in organization to facilitate the administration of the state governmental operations. Although economies may be effected in efficient organization systems, the savings are not always apparent due to the increased cost of expanding operations. The lack of efficient operations, however, tends to increase the costs to a further extent if sound principles of administrative organization are not established.

DEPARTMENTALIZATION

Prior to the beginning of State Government reorganization about 1917, State Government in California and other states was characterized by a heterogeneous organization of independent boards, commissions, and other agencies. The principle of administrative consolidation accepted and adopted by California and most of the other states resulted in a system of departments combining related activities. Although some nonrelated functions are sometimes included in the departmental structure, this administrative principle has become firmly established.

California started departmental consolidation in 1921 with the enactment of legislation creating five departments—Finance, Agriculture, Education, Public Works, and Institutions. This departmental structure was reorganized in 1927 and four new departments were created. The new departments were Industrial Relations, Natural Resources, Public Health, and Social Welfare. The consolidation program continued in 1929 when four more departments were created—Investment, Professional and Vocational Standards, Penology, and Military and Veterans Affairs. The Department of Motor Vehicles was established in 1931.

With the exception of the creation of the Department of Employment to administer the new Unemployment Insurance Act, the departmental consolidation completed in 1931 remained substantially the same for a period of 10 years.

The departmental structure began to expand in 1941. The Legislature, in that year, established the Division of Insurance of the Department of Investment as a separate Department of Insurance. In 1944, the Department of Justice was established under the Attorney General, and the Department of Corrections replaced the Department of Penology.

The reorganization of departments continued in 1945 when the Department of Mental Hygiene was created to replace the Department of Institutions. The Department of Military and Veterans Affairs was renamed the Department of Veterans Affairs in 1946.

Further separation of departments occurred in 1947 when the Division of Enforcement of the Department of Motor Vehicles was established as a separate department of California Highway Patrol. The most recent separation occurred in 1951 when the Division of Fish and Game was removed from the Department of Natural Resources, reorganized, and established as a separate Department of Fish and Game.

The marked trend toward regrouping of certain functions into separate departments deserves detailed consideration. At first glance, this movement appears to be a departure from the principle of administrative consolidation. Further consideration however, shows that the organization of functions and activities according to purpose is in accord with basic principles of administration and is not necessarily in conflict with the principle of administrative consolidation.

This aspect of administration organization is well illustrated by the factors leading to the establishment of the Department of Fish and Game in 1951. It had been apparent for some time that the organization for the administration of the fish and game laws under existing statutory provisions did not provide for efficient performance. The January, 1951, report of the Senate Interim Committee on Fish and Game, for example, states that "In spite of protestations of good intentions to the contrary notwithstanding, the fact remains the Division of Fish and Game has not put its house in order despite repeated prompting from the Legislature, the Department of Finance, the public, and its own Fish and Game Commission."

Although the Division of Fish and Game was in the Department of Natural Resources, the director provided accounting and budgetary services but had no other administrative authority. The affairs of the division were administered by the Fish and Game Commission. Two proposals were made in 1951 to correct this defect in administrative organization. Legislation sponsored by the Senate Interim Committee on Governmental Reorganization proposed that the Fish and Game Commission to continue to formulate general policy but that the activities should be integrated by the Director of Natural Resources. The Senate Interim Committee on Fish and Game recommended that the Division of Fish and Game be withdrawn from the Department of Natural Resources and established as a separate Department of Wildlife.

The Legislature, in general, followed the recommendation of the Senate Interim Committee on Fish and Game and established the Division of Fish and Game as a separate Department of Fish and Game in 1951. In addition to improving the administrative organization, this action appeared to be motivated by a desire to emphasize the purpose of the provisions of the Fish and Game Code by establishing a much stronger administration in the form of a new department than could be accomplished by continuing the organization as one of the divisions of the Department of Natural Resources.

ORGANIZATION PRINCIPLES

The Senate Interim Committee on Governmental Organization, as noted above, believes that *purpose* should be one of the fundamental principles of administrative organization. The creation of the Department of Fish and Game, for example, stressed the importance of purpose in the organizational structure of State Government. This principle of administrative organization is becoming more important in California as the state operations expand to meet the needs of an extremely rapid increase in population. It is quite probable that this principle will be an effective argument for the establishment of new departments during the 1953 Session of the Legislature.

As indicated above, the organization of the governmental structure along the lines of administrative purpose doesn't necessarily conflict with the principle of administrative consolidation. The extension of the number of administrative departments, however, does create a new problem of over-all management of State operations. California now has 19 major departments. In chronological order of establishment these departments are as follows:

Agriculture	1919
Education	1921
Finance	1921
Public Works	1921
Industrial Relations	1927
Natural Resources	1927
Public Health	1927
Social Welfare	1927
Investment	1929
Professional and Vocational Standards	1929
Motor Vehicles	1931
Employment	1935
Insurance	1941
Corrections	1944
Justice	1944
Mental Hygiene	1945
Veterans Affairs	1946
California Highway Patrol	1947
Fish and Game	1951

The administrative organization of State Government, of course, includes a number of other agencies besides the 19 major departments. Some organizations such as the Departments of Education and Justice are responsible to separately elected constitutional officers. The various agencies reporting and responsible to the Governor are shown in Chart 1. The Department of Education is included in this group since this department is a part of the Governor's Council and submits reports to the Governor as prescribed by law although the activities of this department are administered by the Superintendent of Public Instruction who is also the Director of the Department of Education.

The trend toward expansion of the number of major departments has been opposed by many textbook authors and other authorities in the field of public administration. This thinking influenced the first studies of the Senate Interim Committee on Governmental Reorganization. The Second Partial Report of this Committee (1951), for example, stated in part that: "The ultimate objective should be an effective departmental system in which all state agencies are organized in a few major departments."

The theory of a small number of major departments being the most effective form of administrative organization is related to the concept of the "span of control." This concept was recently introduced in the United States by the publication of an essay, "Relationship in Organization" by V. A. Graicunas of France in *Papers on the Science of Administration* (1937) assembled by Luther Gulick and Lyndall Urwick.

According to Professor James C. Charlesworth of the University of Pennsylvania, author of *Governmental Administration* (1951), the "span of control" concept "is allegedly related to the psychologist's span of attention. Its basic tenet is that there is a low limit to the number of subordinates an executive can supervise effectively, because of the tremendous number of direct and cross-relationships among supervisors and supervisees."

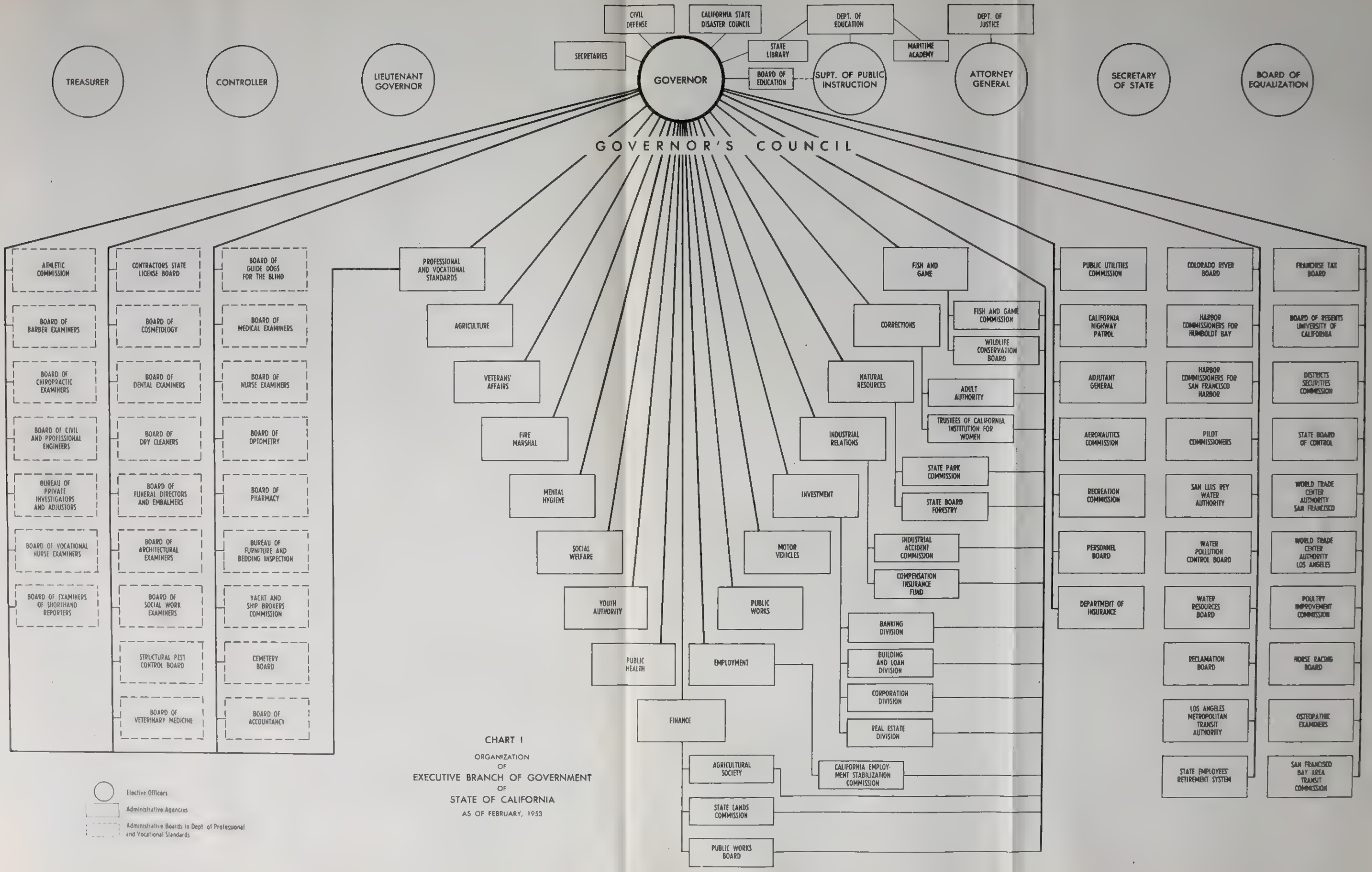

CIVIL DEFENSE
CALIFORNIA STATE DISASTER COUNCIL
DEPT. OF EDUCATION
DEPT. OF JUSTICE
SECRETARIES
STATE LIBRARY
MARITIME ACADEMY
TREASURER
CONTROLLER
LIEUTENANT GOVERNOR
GOVERNOR
BOARD OF EDUCATION
SUPT. OF PUBLIC INSTRUCTION
ATTORNEY GENERAL
SECRETARY OF STATE
BOARD OF EQUALIZATION
GOVERNOR'S COUNCIL
ATHLETIC COMMISSION
BOARD OF BARBER EXAMINERS
BOARD OF CHIROPRACTIC EXAMINERS
BOARD OF CIVIL AND PROFESSIONAL ENGINEERS
BUREAU OF PRIVATE INVESTIGATORS AND ADJUSTORS
BOARD OF VOCATIONAL NURSE EXAMINERS
BOARD OF EXAMINERS OF SHORTHAND REPORTERS
CONTRACTORS STATE LICENSE BOARD
BOARD OF COSMETOLOGY
BOARD OF DENTAL EXAMINERS
BOARD OF DRY CLEANERS
BOARD OF FUNERAL DIRECTORS AND EMBALMERS
BOARD OF ARCHITECTURAL EXAMINERS
BOARD OF SOCIAL WORK EXAMINERS
STRUCTURAL PEST CONTROL BOARD
BOARD OF VETERINARY MEDICINE
BOARD OF GUIDE DOGS FOR THE BLIND
BOARD OF MEDICAL EXAMINERS
BOARD OF NURSE EXAMINERS
BOARD OF OPTOMETRY
BOARD OF PHARMACY
BUREAU OF FURNITURE AND BEDDING INSPECTION
YACHT AND SHIP BROKERS COMMISSION
CEMETERY BOARD
BOARD OF ACCOUNTANCY
PROFESSIONAL AND VOCATIONAL STANDARDS
AGRICULTURE
VETERANS' AFFAIRS
FIRE MARSHAL
MENTAL HYGIENE
SOCIAL WELFARE
YOUTH AUTHORITY
PUBLIC HEALTH
EMPLOYMENT
FINANCE
AGRICULTURAL SOCIETY
STATE LANDS COMMISSION
PUBLIC WORKS BOARD
CALIFORNIA EMPLOYMENT STABILIZATION COMMISSION
PUBLIC WORKS
MOTOR VEHICLES
INVESTMENT
INDUSTRIAL RELATIONS
NATURAL RESOURCES
CORRECTIONS
FISH AND GAME
FISH AND GAME COMMISSION
WILDLIFE CONSERVATION BOARD
ADULT AUTHORITY
TRUSTEES OF CALIFORNIA INSTITUTION FOR WOMEN
STATE PARK COMMISSION
STATE BOARD FORESTRY
INDUSTRIAL ACCIDENT COMMISSION
COMPENSATION INSURANCE FUND
BANKING DIVISION
BUILDING AND LOAN DIVISION
CORPORATION DIVISION
REAL ESTATE DIVISION
PUBLIC UTILITIES COMMISSION
CALIFORNIA HIGHWAY PATROL
ADJUTANT GENERAL
AERONAUTICS COMMISSION
RECREATION COMMISSION
PERSONNEL BOARD
DEPARTMENT OF INSURANCE
COLORADO RIVER BOARD
HARBOR COMMISSIONERS FOR HUMBOLDT BAY
HARBOR COMMISSIONERS FOR SAN FRANCISCO HARBOR
PILOT COMMISSIONERS
SAN LUIS REY WATER AUTHORITY
WATER POLLUTION CONTROL BOARD
WATER RESOURCES BOARD
RECLAMATION BOARD
LOS ANGELES METROPOLITAN TRANSIT AUTHORITY
STATE EMPLOYEES' RETIREMENT SYSTEM
FRANCHISE TAX BOARD
BOARD OF REGENTS UNIVERSITY OF CALIFORNIA
DISTRICTS SECURITIES COMMISSION
STATE BOARD OF CONTROL
WORLD TRADE CENTER AUTHORITY SAN FRANCISCO
WORLD TRADE CENTER AUTHORITY LOS ANGELES
POULTRY IMPROVEMENT COMMISSION
HORSE RACING BOARD
OSTEOPATHIC EXAMINERS
SAN FRANCISCO BAY AREA TRANSIT COMMISSION
Elective Officers
Administrative Agencies
Administrative Boards in Dept. of Professional and Vocational Standards

CHART I

ORGANIZATION
OF
EXECUTIVE BRANCH OF GOVERNMENT
OF
STATE OF CALIFORNIA
AS OF FEBRUARY, 1953

All theories must be tested by practical application. Practical application often reveals the fallacy of adopting a recognized principle of one discipline such as the psychologist's span of attention to another field such as public administration. The "span of control" concept, therefore, has recently been re-examined by authoritative practitioners in the field of public administration. Professor Charlesworth who is also the Director of the Educational Program Institute of Local and State Government of the University of Pennsylvania summarized the limitations of the "span of control" concept as follows:

> "First the concept relates only to diversely occupied but administratively interrelated subordinates. Supervising 20 typists, all of whom are typing the same thing, is no task at all compared to managing a large settlement house, in which the problems of athletic and game leaders, cooks, bookkeepers, boards of directors, money raiser, housekeepers, counselors, and many other specialists vie for the attention of the director. Secondly, it assumes that the executive is an average executive, whereas everyone knows that some persons cannot successfully supervise even one subordinate and that others can manage 10 or a dozen with ease. In the third place, the association of the span of effective control with the psychologist's span of attention is erroneous. The span of attention relates to a reader's grasp of a series of digits or letters, making up numbers and words. That is, it concerns the simultaneous presence of all of the factors in the mind or consciousness * * *. In executive supervision, however, it is extremely rare that the superior deals with every subordinate simultaneously. The normal procedure is for him to meet his lieutenants and their problems *seriatim*.
>
> "There is no reality, therefore, in saying that six, or any other figure, is the optimum number of subordinates. No valid generalization on this point can be made * * *.
>
> "In fixing the proper number of supervisees, account must be taken of the degree of dissimilarity in the work of the several units, the state of discipline in the organization, the pattern of cooperative habit, the general supervisory ability of the top executive, and the degree of intransigence among subordinates not sufficiently intransigent to merit being fired. When designing an administrative structure, the administrator should inductively examine all of the pertinent factors, and not proceed in accordance with abstract hypotheses and unverified general formulae. The philosophy of organization is empirical; and this statement applies to the span of control no less than to any other sector of the theory of organization and direction."

Organization within departments and the number of departments to be organized, therefore, may be two different subjects in respect to administrative supervision. The organization of activities within a department should consist of related activities and the administrative function of the director would consist of coordinating related activities and providing the necessary budget controls and housekeeping facilities for the departments.

MANAGEMENT CONTROLS

The supervision of a number of departments, however, requires techniques and procedures that are not required for the supervision of the activities of a department with related activities. This aspect of administration consists of both executive and administrative responsibilities.

Executive functions are those related to broad policy and coordination of all state operations. Administrative functions are those concerned with general management and controls. Executive functions are discussed in more detail in the following sections of this chapter.

The principal management functions are those of accounting, budgetary controls, personnel procedures, establishment of uniform administrative procedures, purchasing, property management, communication, and similar "housekeeping" functions. Many states now have a central agency to provide these control functions of general management. *The Book of the States* 1952-1953 published by the Council of State Governments states that:

> "The most striking development in financial administration in recent years, as mirrored by reports of commissions, has been a trend toward an integrated department of finance or administration in which are located the principal staff and housekeeping activities of State government. This appears to have a twofold objective: to strengthen the chief executive's control over his administration and at the same time improve services to operating officials.
>
> "The hard core of executive control has lain in the executive budget. To this now has been added enlightened accounting control, the pre-audit, and functions not primarily of a fiscal nature, such as continuing administrative analysis, purchasing, personnel, and such housekeeping functions as central car pools, property management, mail and messenger services, and the like."

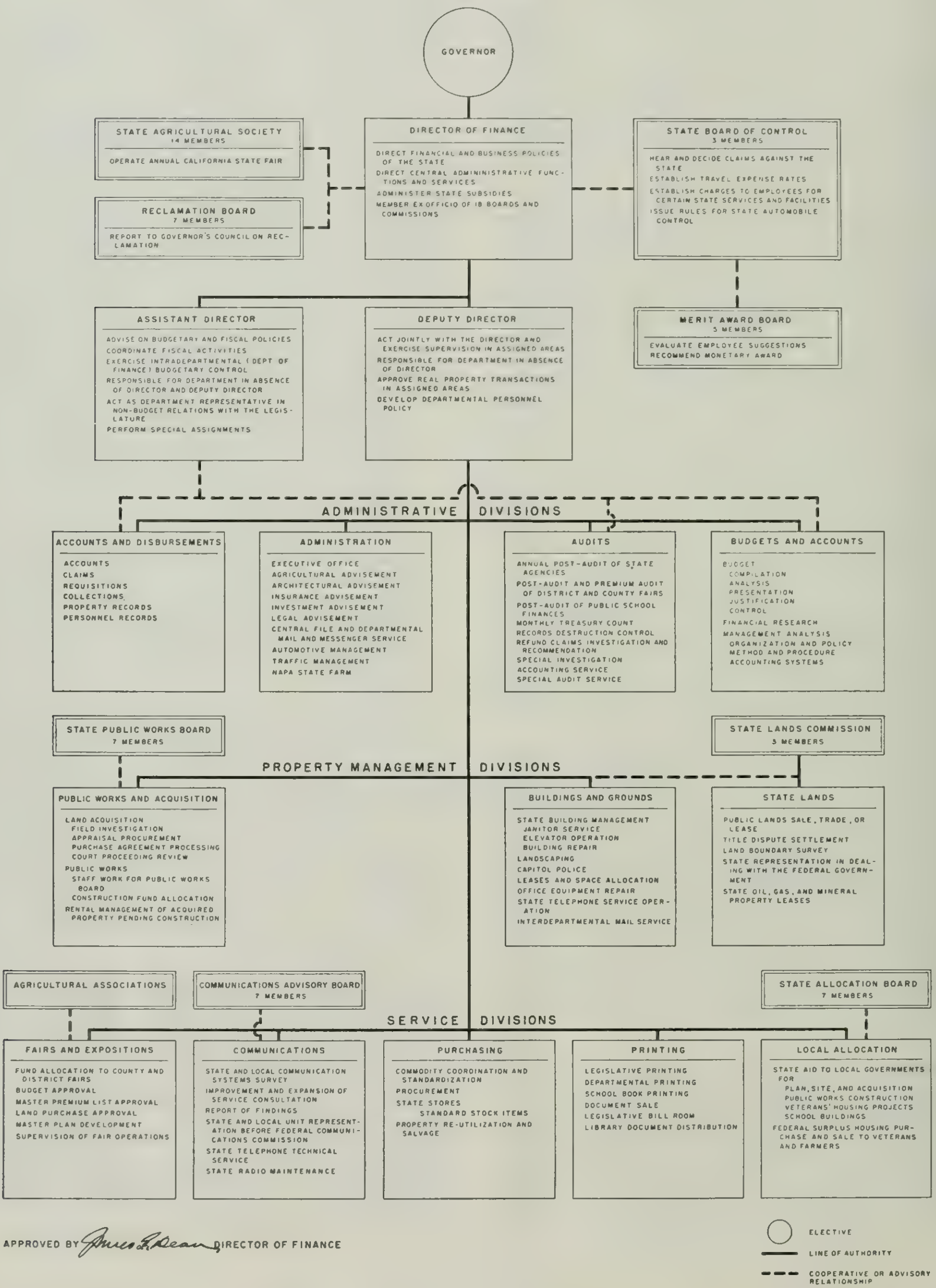
California has been one of the leading states in developing this type of central control and service agency. In California, this is the Department of Finance and the Director of Finance is virtually the business manager for the State. This department, established in 1921, was one of the first major departments of State Government in California. One of the principal divisions established at the time the department was created was the Division of Budgets and Accounts. The Division of Printing was also established at that time and other services such as purchasing were consolidated in the Department of Finance. Chart II shows the organization of the department as of January, 1953.

The same functions and activities in some of the other states have been organized into a Department of Administration. Minnesota, for example, has had a "state manager" with the title of Commissioner of Administration since 1939. The functions of the Minnesota Department of Administration are practically the same as those of the California Department of Finance. The Michigan Legislature created a Department of Administration in 1948. This department is head by a Controller appointed by the Governor with the consent of the Senate and holding office at the pleasure of the Governor. The duties of the Michigan Controller are also very similar to those of the California Director of Finance.

ORGANIZATIONAL CHART

CALIFORNIA STATE DEPARTMENT OF FINANCE

SEPTEMBER 1951



GOVERNOR

DIRECTOR OF FINANCE
- DIRECT FINANCIAL AND BUSINESS POLICIES OF THE STATE
- DIRECT CENTRAL ADMININISTRATIVE FUNCTIONS AND SERVICES
- ADMINISTER STATE SUBSIDIES
- MEMBER EX OFFICIO OF 18 BOARDS AND COMMISSIONS

STATE AGRICULTURAL SOCIETY
14 MEMBERS
- OPERATE ANNUAL CALIFORNIA STATE FAIR

RECLAMATION BOARD
7 MEMBERS
- REPORT TO GOVERNOR'S COUNCIL ON RECLAMATION

STATE BOARD OF CONTROL
3 MEMBERS
- HEAR AND DECIDE CLAIMS AGAINST THE STATE
- ESTABLISH TRAVEL EXPENSE RATES
- ESTABLISH CHARGES TO EMPLOYEES FOR CERTAIN STATE SERVICES AND FACILITIES
- ISSUE RULES FOR STATE AUTOMOBILE CONTROL

MERIT AWARD BOARD
5 MEMBERS
- EVALUATE EMPLOYEE SUGGESTIONS
- RECOMMEND MONETARY AWARD

ASSISTANT DIRECTOR
- ADVISE ON BUDGETARY AND FISCAL POLICIES
- COORDINATE FISCAL ACTIVITIES
- EXERCISE INTRADEPARTMENTAL (DEPT OF FINANCE) BUDGETARY CONTROL
- RESPONSIBLE FOR DEPARTMENT IN ABSENCE OF DIRECTOR AND DEPUTY DIRECTOR
- ACT AS DEPARTMENT REPRESENTATIVE IN NON-BUDGET RELATIONS WITH THE LEGISLATURE
- PERFORM SPECIAL ASSIGNMENTS

DEPUTY DIRECTOR
- ACT JOINTLY WITH THE DIRECTOR AND EXERCISE SUPERVISION IN ASSIGNED AREAS
- RESPONSIBLE FOR DEPARTMENT IN ABSENCE OF DIRECTOR
- APPROVE REAL PROPERTY TRANSACTIONS IN ASSIGNED AREAS
- DEVELOP DEPARTMENTAL PERSONNEL POLICY

ADMINISTRATIVE DIVISIONS

ACCOUNTS AND DISBURSEMENTS
- ACCOUNTS
- CLAIMS
- REQUISITIONS
- COLLECTIONS
- PROPERTY RECORDS
- PERSONNEL RECORDS

ADMINISTRATION
- EXECUTIVE OFFICE
- AGRICULTURAL ADVISEMENT
- ARCHITECTURAL ADVISEMENT
- INSURANCE ADVISEMENT
- INVESTMENT ADVISEMENT
- LEGAL ADVISEMENT
- CENTRAL FILE AND DEPARTMENTAL MAIL AND MESSENGER SERVICE
- AUTOMOTIVE MANAGEMENT
- TRAFFIC MANAGEMENT
- NAPA STATE FARM

AUDITS
- ANNUAL POST-AUDIT OF STATE AGENCIES
- POST-AUDIT AND PREMIUM AUDIT OF DISTRICT AND COUNTY FAIRS
- POST-AUDIT OF PUBLIC SCHOOL FINANCES
- MONTHLY TREASURY COUNT
- RECORDS DESTRUCTION CONTROL
- REFUND CLAIMS INVESTIGATION AND RECOMMENDATION
- SPECIAL INVESTIGATION
- ACCOUNTING SERVICE
- SPECIAL AUDIT SERVICE

BUDGETS AND ACCOUNTS
- BUDGET
  - COMPILATION
  - ANALYSIS
  - PRESENTATION
  - JUSTIFICATION
  - CONTROL
- FINANCIAL RESEARCH
- MANAGEMENT ANALYSIS
  - ORGANIZATION AND POLICY
  - METHOD AND PROCEDURE
  - ACCOUNTING SYSTEMS

PROPERTY MANAGEMENT DIVISIONS

STATE PUBLIC WORKS BOARD
7 MEMBERS

STATE LANDS COMMISSION
3 MEMBERS

PUBLIC WORKS AND ACQUISITION
- LAND ACQUISITION
  - FIELD INVESTIGATION
  - APPRAISAL PROCUREMENT
  - PURCHASE AGREEMENT PROCESSING
  - COURT PROCEEDING REVIEW
- PUBLIC WORKS
  - STAFF WORK FOR PUBLIC WORKS BOARD
  - CONSTRUCTION FUND ALLOCATION
- RENTAL MANAGEMENT OF ACQUIRED PROPERTY PENDING CONSTRUCTION

BUILDINGS AND GROUNDS
- STATE BUILDING MANAGEMENT
  - JANITOR SERVICE
  - ELEVATOR OPERATION
  - BUILDING REPAIR
- LANDSCAPING
- CAPITOL POLICE
- LEASES AND SPACE ALLOCATION
- OFFICE EQUIPMENT REPAIR
- STATE TELEPHONE SERVICE OPERATION
- INTERDEPARTMENTAL MAIL SERVICE

STATE LANDS
- PUBLIC LANDS SALE, TRADE, OR LEASE
- TITLE DISPUTE SETTLEMENT
- LAND BOUNDARY SURVEY
- STATE REPRESENTATION IN DEALING WITH THE FEDERAL GOVERNMENT
- STATE OIL, GAS, AND MINERAL PROPERTY LEASES

SERVICE DIVISIONS

AGRICULTURAL ASSOCIATIONS

COMMUNICATIONS ADVISORY BOARD
7 MEMBERS

STATE ALLOCATION BOARD
7 MEMBERS

FAIRS AND EXPOSITIONS
- FUND ALLOCATION TO COUNTY AND DISTRICT FAIRS
- BUDGET APPROVAL
- MASTER PREMIUM LIST APPROVAL
- LAND PURCHASE APPROVAL
- MASTER PLAN DEVELOPMENT
- SUPERVISION OF FAIR OPERATIONS

COMMUNICATIONS
- STATE AND LOCAL COMMUNICATION SYSTEMS SURVEY
- IMPROVEMENT AND EXPANSION OF SERVICE CONSULTATION
- REPORT OF FINDINGS
- STATE AND LOCAL UNIT REPRESENTATION BEFORE FEDERAL COMMUNICATIONS COMMISSION
- STATE TELEPHONE TECHNICAL SERVICE
- STATE RADIO MAINTENANCE

PURCHASING
- COMMODITY COORDINATION AND STANDARDIZATION
- PROCUREMENT
- STATE STORES
  - STANDARD STOCK ITEMS
- PROPERTY RE-UTILIZATION AND SALVAGE

PRINTING
- LEGISLATIVE PRINTING
- DEPARTMENTAL PRINTING
- SCHOOL BOOK PRINTING
- DOCUMENT SALE
- LEGISLATIVE BILL ROOM
- LIBRARY DOCUMENT DISTRIBUTION

LOCAL ALLOCATION
- STATE AID TO LOCAL GOVERNMENTS FOR
  - PLAN, SITE, AND ACQUISITION
  - PUBLIC WORKS CONSTRUCTION
  - VETERANS' HOUSING PROJECTS
  - SCHOOL BUILDINGS
- FEDERAL SURPLUS HOUSING PURCHASE AND SALE TO VETERANS AND FARMERS

APPROVED BY James S. Dean DIRECTOR OF FINANCE

In addition to fiscal controls and housekeeping services, a central management agency such as the Department of Finance provides facilities for administrative management advice for all departments and facilities for the interchange of management procedures. Interdepartmental committees have also been established in California for the purpose of exchange of ideas and the development of efficient administrative procedures. As noted in the second partial report of this committee (1951), such interdepartmental committees include:

1. Deputy directors' conference—composed of deputy directors of the major departments;
2. Accounting officers' conference—made up of the chief accounting officer of the major departments;
3. Personnel officers' conference—representing the chief personnel offices of the major departments, and
4. Interdepartmental research coordinating committee—consisting of the principal research offices of the major departments.

THE CHIEF EXECUTIVE

Article III of the Constitution of the State of California provides in part that "The power of the government of the State of California shall be divided into three separate departments—the legislative, executive, and judicial." Section 1 of Article V of the Constitution provides as follows:

> "Section 1. The supreme executive power of this State shall be vested in a Chief Magistrate, who shall be styled the Governor of the State of California."

The phrase "supreme executive power" is a limitation on the executive power of the Governor inasmuch as the California Constitution also provides for the election of other state administrative officers such as Secretary of State, Controller, Treasurer, Attorney General, and Superintendent of Public Instruction. The provision for the exercise of the "supreme executive power" of Section 1 of Article V of the California Constitution is in contrast with the similar provisions of the Constitution of the United States, Section 1 of Article II which states in part that: "The executive power shall be vested in a President of the United States."

Although the executive power of the Governor is limited by the Constitutional provisions for election of other executive officials, Section 6 of Article V of the California Constitution provides that the Governor "shall transact all executive business with the officer of government, civil and military, and may require information, in writing, from the officers of the Executive Department upon any subject relating to the duties of their respective offices." Section 7 of Article V also provides that the Governor "shall see that the laws are faithfully executed."

As discussed above, many of the management functions which are part of the administrative powers of the Governor are administered by the Department of Finance. The Governor's Council created by statute in 1927 is also designed to assist the Governor in the performance of his executive power and duties.

Prior to the reorganization of State Government in 1927, the reports of activities submitted to the Governor were the traditional biennial reports. These reports were frequently the only ones which the Governor received as to the activities of the various agencies. In addition to the general reorganization proposals, Governor Young's inaugural message recommended a "Governor's Cabinet or council, to the end at regular meetings there may be discussed in orderly fashion the various problems which confront the State."

When the Governor's Council was first created, the membership consisted of the nine Directors of the major departments which were organized by the legislation of 1927 and previous years. Both the First and Second Biennial Messages of Governor Young devoted considerable space to the activities of the Governor's Council. The Second Biennial Message, January 5, 1931, described four chief purposes of the council as follows:

> "Thus to sum up what I have already said, the creation of a Governor's Council has served at least four purposes, each of them so important as to make it almost indispensable in any departmentalized form of government. First, it brings together those in charge of various governmental activities, and furnishes opportunity for unifying those activities such as would never be possible when boards, commissions, or even departments have no contact, one with the other. Second, it keeps the Governor continuously informed as to the progress of the State's government from month to month, with only a fraction of the time and effort which would be required in a constant endeavor to learn about each department separately. Third, it gives to the Governor a body much like the President's cabinet, consisting of council members, each especially concerned with the work of his own department, but all acquiring a general knowledge of all departments, and consequently always available to the Governor for counsel and advice. And fourth, by the very necessity of these monthly reports to the Governor in the presence of his fellow directors, each director is stimulated to his best efforts to keep closely in touch with activities of each division in his department."

As indicated above, the Governor's Council functioned as a cabinet under the incumbency of Governor Young and held regular monthly meetings as required by law. The council meetings were discontinued by Governor Rolph. Governors Merriam and Olson held only a few meetings of the council. Governor Warren, however, has held council meetings regularly each month.

The original statutory membership of nine department directors has now increased to eighteen. The statutory provisions for the Governor's Council are Sections 12040 and 12041 of the Government Code. These sections as amended by Chapter 715, Statutes of 1951 are as follows:

> "Sec. 12040. *Governors Council Recognized: Members.* There is in the State Government the Governor's Council. It consists of the Directors of Finance, Education, Public Works, Motor Vehicles, Public Health, Mental Hygiene, Agriculture, Industrial Relations, Social Welfare, Natural Resources, Investments, Professional and Vocational Standards, Veterans Affairs, Corrections, Fish and Game, and the Youth Authority, the State Fire Marshal, and the Chairman of the California Employment Stabilization Commission.

> "Sec. 12041. *Meetings: Time and Place: Report to Governor: Other Duties.* At least once each month the council shall meet in Sacramento at such time and place as the Governor may designate. Each member of the council shall report to the Governor at the time of the monthly meeting, and at such other times as the Governor may desire, the facts regarding the administrators of the functions of his department and shall perform such duties as a member of the council, as the Governor may require."

Although the statutes provide for specific members, the Governor has invited the constitutional officers and others to attend the council meetings so that the membership now include 36 state officials. The meetings now are informational in character and the monthly reports are circulated to the press, radio, and others interested in general information relating to State Government operations.

Proposals have been made from time to time to strengthen the organization of the council and to provide for continuity of operations. Griffenhagen and Associates, for example, submitted a report to the Interim Committee of Twenty-five (Report No. 85) recommending that the name be changed to "Administrative Council"; that official membership of the council include the executive, as well as the titular, head of all major agencies; and that the council be provided with a secretariat. Another proposal that has been made is that of a position of Executive Deputy to the Governor to be vice-chairman of the council. It has been suggested that the establishment of this type of position would provide continuity from one administration to the next.

Although none of these particular proposals have been adopted as such, the council has been organized so as to provide an opporutnity for advising the Governor on general policy procedures. The Governor's Departmental Secretary acts as the Secretary of the Governor's Council and prepares a summary digest of the monthly reports submitted by the departments and agencies participating in the council meetings. Approximately 150 copies of this digest are prepared and distributed to the participating agencies as well as to the Governor.

One day a month is devoted to council meetings. All members attend the general meeting in the morning. The Governor holds conferences in the afternoon with each of the four council committees. These are: (1) Financial and Business Regulation Committee—5 members; (2) Education and Vocational Regulation Committee—5 members; (3) Construction, Traffic and Natural Resources Committee—7 members; and (4) Institutional and Social Welfare Committee—9 members. These committees function somewhat in the fashion of a Governor's cabinet and discuss policies related to their particular assignments. At least a half hour, more if necessary, is set aside for each committee.

The Governor's Staff

The Governor of California has many other functions and duties in addition to those of the State's Chief Executive. The most important and time consuming of these other duties are those of (1) the ceremonial head of the State; (2) powers relating to executive clemency such as pardons, commutations of sentences, and reprieves; and (3) legislation.

The Governor is assisted in performing the various functions and duties required by the Constitution and innumerable statutory provisions by a staff of secretaries and clerical assistants. The Office of Governor and the secretarial staff are described in the 1950 *California Blue Book* as follows:

> "The supreme executive power of the State of California is vested in the Governor, who is elected by the people for a term of four years. To be eligible for the office, an individual must be 25 years of age or over, a citizen of the United States, and a resident of California for five years immediately preceding his election.
>
> "As chief administrative officer of California State Government, the Governor has wide powers to plan, organize, direct and coordinate the activities of the many state agencies. His responsibilities in this regard may be likened to those of the president of a large business enterprise engaged in numerous activities and having many branches. The quality of leadership given by the Governor is of major importance to the citizens of California, because his ability and resourcefulness set the tempo for state operations.
>
> "In addition to being the chief administrator, the Governor has several additional powers and responsibilities. He is the Commander-in-Chief of the State Militia, appoints certain state officers and members of many boards and commissions, and has the power to grant pardons, reprieves and commutations of sentence.
>
> "The Governor plays an important role in the legislative process. He presents a message to the Legislature at the opening of each session outlining the condition of the State and recommending a program of action. He also prepares annually a state budget for submission to the Legislature.
>
> "All bills passed by the Legislature are subject to the Governor's approval before becoming law. He has the power to veto bills, and the Legislature may override his veto only by a two-thirds affirmative vote. In the case of appropriation bills, the Governor may use his veto power to reduce or eliminate any one or more items of appropriation, while approving other items of the same bill.
>
> "To assist him in performing his many duties to best advantage, the Governor utilizes a staff of experienced assistants who are specialists in several fields. There is an executive secretary responsible, among other things, for the internal organization and operation of the Governor's office. The Governor's private secretary is responsible for keeping the Governor's appointment schedule and helping him in a variety of ways to expedite the large volume of business which demands his personal attention. The press secretary, as the name implies, aided by the assistant press secretary, has the important task of maintaining clear channels of communication between the Governor and the people of the State, through the press and radio. He prepares news releases and is responsible for seeing that the public is kept informed on current activities of State Government. The legislative secretary assists the Gov-

ernor in contacts with the Legislature, analyzes the effect of legislative proposals, and provides other related services. Of the other four secretaries, one acts as secretary to the Governor's Council and maintains liaison with the various state departments and agencies. Another secretary keeps the Governor informed regarding vacancies which occur among the boards, commissions and offices to which the Governor is empowered to appoint, and handles the details of extradition and executive clemency matters. A third secretary handles the Governor's many invitations, arranges his travel schedule and accompanies him when he is away from the Capitol. Another secretary provides research information for the Governor's use in conferences and in public utterances.

"The secretaries reflect in their activities the viewpoint of the Governor, and are responsible for differentiating between matters which should be referred to him and matters which can be handled on the basis of general policies which have been laid down by him. Although only a bare framework of activities of the Governor's office has been presented here, it can readily be seen that this type of organization is highly important in permitting the Governor to channel his time and energy into activities which are most essential and of most benefit to the people of California."

The Governor's staff consists of 10 secretaries, an assistant to a secretary, an Administrative Assistant and the necessary stenographic and clerical assistants. Four secretaries have established titles as follows: (1) Executive Secretary, (2) Private Secretary, (3) Press Secretary, and (4) Legislative Secretary. Six secretaries have the following assignments: (1) departmental, (2) clemency, (3) research, (4) travel, (5) invitations, and (6) press and information. The Administrative Assistant assists the Governor and Executive Secretary as required.

The Executive Secretary has general control of the Governor's staff and handles special assignments when necessary. An accounting technician is in charge of the fiscal and accounting records. A receptionist greets the public and an office supervisor is in charge of the clerical members of the staff.

The departmental secretary and an assistant act as liaison for the Governor and 66 major departments and agencies in the exercise of the Governor's executive and general administrative functions. The departmental secretary, as discussed above, is also the Secretary of the Governor's Council. The position of departmental secretary is a relatively new assignment and has been established for about six years. The assignment of an assistant is quite recent. Prior to the assignment of one secretary as departmental secretary, liaison duties between the Governor and the state agencies were assigned to various members of the secretarial staff. All of the secretaries perform some liaison duties to some extent.

The necessity for liaison between the Governor and the state agencies, in addition to the management functions performed by the Department of Finance, is illustrated by the following example: The director of a department, i.e., Public Health, may have reason to believe that an outbreak of encephalitis or other hazard to the public health is iminent and asks the Director of Finance for a budget increase. The Director of Finance may be sympathetic but, as the fiscal control officer, does not believe that an additional expenditure of state funds should be made at that time. If both departmental directors insist, final decision must be made by the Governor. Since there are a great number of state agencies, such situations are multiplied many times. It is thus necessary that some liaison facilities be provided.

Executive Assistants

As discussed above, the expansion of the operations of State Government as a result of the rapidly increasing population and current economic conditions leads to the inevitable growth of the State Agencies. Some agencies can be expanded to meet these increased needs. Other needs are best met by the creation of new agencies for the administration of new activities.

It is obvious that the expansion of state operations and agencies increases the need for coordination. The executive or management function of a growing state such as California is tremendous in scope. The Governor, as discussed above, has other important tasks besides those of a chief executive. These duties also increase as state operations expand.

The suggestion is made, therefore, that the executive task could be simplified by the appointment of a few executive assistants to the Governor. A number of related departments and agencies could be assigned to each such assistant for liaison activities. One executive assistant, for example, might well be assigned to a group of agencies such as those represented by the four standing committees of the Governor's Council.

The number of agencies to be assigned to each executive assistant could be flexible and new assignments or change of assignments made as conditions require. Some activities of State Government such as highway construction and the need for the development and conservation of the water resources of the State are very pressing problems at the present time. Management problems of some of the other operations of State Government may not be as numerous at the same time. A flexible system of liaison assignments, therefore, would operate to keep the number of necessary executive assistants at a minimum and still provide assistance to the Governor on the coordination and administration of the executive functions.

CHAPTER 3

DEPARTMENTAL UNITY

The growth of the departmental system in California has been discussed in Chapter 2 of this report. The principle of departmental unity has been discussed in other reports of the Senate Interim Committee on Governmental Reorganization.

Most of the departments are organized with homogeneous divisions responsible to a director who has control of all branches of his department. The organization of a few of the departments, however, does not conform with this principle of departmental unity. All of the divisions of the Departments of Employment or Natural Resources, for example, are not under the direct control of the director of the department. Other related activities such as those dealing with water resources are not consolidated in one department. These problems are discussed in this chapter.

DEPARTMENT OF EMPLOYMENT

The Unemployment Insurance Act now provides for a Department of Employment and the California Employment Stabilization Commission. Section 75, 8th Act, provides that the Director of Employment shall be appointed by the Governor, subject to the approval of the Senate, from the membership of the commission and that the director shall act as chairman of the commission.

Section 76 of the Unemployment Insurance Act provides for the Division of Employment Offices Benefit Payments and the Division of Accounts and Tax Collections. This section also provides that each of these two divisions shall be under a chief who shall be appointed by the Governor, subject to the approval of the Senate, and who shall serve at the pleasure of the Governor. Section 83 of the act provides that the California Stabilization Commission shall consist of five members, who shall be the three members of the Unemployment Insurance Appeals Board, the Chief of the Division of Public Employment Offices and Benefit Payments, and the Chief of the Division of Accounts and Tax Collections.

At the present time the Director and Deputy Director of the Department of Employment each have three positions. They serve as director and deputy director respectively, as chiefs of divisions, and as members of the California Employment Stabilization Commission.

Both the director and deputy director are appointed by the Governor. Although the present incumbents of these positions now have harmonious relationships, this condition could lead to confusion and disruption in administration if these two officials ever reached an impasse in the execution of the departmental programs.

Although the director and deputy director each have the statutory title of "chief of division," administration of their divisions is actually assigned to subordinates to permit these officials to fulfill their duties as Director and Deputy Director of the Department of Employment.

The California Unemployment Stabilization Commission establishes certain rules to govern the operation of the Department of Employment. The commission may, under certain conditions, change the rate of contribution for all employers under the unemployment insurance program. The commission also has the power to recommend a higher rate of unemployment insurance contribution for hazardous industries; it may halt payments under the disability insurance program under certain conditions; and it may recommend certain other modifications in the administration of unemployment insurance and disability insurance.

The functions now performed by the California Unemployment Stabilization Commission are not of great significance to the administration of the activities of the Department of Employment. It is quite probable that the commission could be eliminated entirely.

Senate Bill 1476 introduced by the members of the Senate Interim Committee on Governmental Organization provides for the organization of the Department of Employment along the lines of the other administrative departments. This bill proposes that the director would be appointed by the Governor. He, in turn, would appoint subordinate officials as is now done in other departments and the divisions would be placed in charge of those who actually are the administrators.

The director and deputy director would be replaced as members of the California Unemployment Stabilization Commission by two members appointed by the Governor and not directly concerned with departmental administration. The director would be retained as an ex officio nonvoting member of the commission.

WATER RESOURCE AGENCIES

The administration of the water resource functions of state government is now assigned to some 29 state agencies including seven major departments and 13 independent boards and commissions. The major departments and divisions concerned with the administration of one or more aspects of water resources are as follows:

- Department of Public Works
  - Division of Water Resources
- Department of Finance
  - State Lands Division
- Department of Fish and Game
- Department of Natural Resources
  - Division of Beaches and Parks—State Park Commission
  - Division of Forestry—State Board of Forestry
  - Division of Oil and Gas
  - Division of Mines
- Department of Public Health
  - Bureau of Sanitary Engineering
  - Bureau of Vector Control

Department of Investment
  Division of Real Estate

Other state agencies concerned with some aspect of water resources are as follows:

State Water Resources Board
State Water Project Authority
Colorado River Board
State Reclamation Board
State Lands Commission
Board of Harbor Commissioners San Francisco Harbor
Board of Harbor Commissioners Humboldt Bay
California District Securities Commission
San Luis Rey Water Authority
State Irrigation Board
State Water Pollution Control Board
Nine Regional Water Pollution Control Boards
State Soil Conservation Commisison
Public Utilities Commission

The principal statutory powers and duties of these agencies were summarized by the Legislative Counsel in 1947 for the Joint Legislative Committee on Water Projects. This summary appears in the preliminary report on water problems transmitted to the Legislature March 22, 1948. The only major change in the agencies' powers and duties since that date was the creation of the State Water Pollution Control Board and the regional control boards by legislation enacted in 1949.

The functions of some of these agencies pertain to some uses of water but are not necessarily concerned with the development and conservation of water as an important natural resource of the State. The functions of the Boards of Harbor Commissioners, for example, are those of development and operating of harbor facilities. The Division of Real Estate of the Department of Investment is concerned with an adequate water supply being available for real estate subdivisions and the location of such subdivisions in flood free areas.

The agencies concerned with water as a natural resource may be classified into two groups: (1) development of water resources, and (2) water pollution. The state agencies primarily concerned with the first group of functions are:

Department of Public Works
State Water Resources Board
State Water Project Authority
State Reclamation Board
Colorado River Board
San Luis Rey Water Authority
California Districts Securities Commission

The agencies primarily concerned with various aspects of the problem of water pollution are as follows:

State Water Pollution Control Board
Nine Regional Water Pollution Control Boards
Department of Public Health
Department of Natural Resources

Development of Water Resources

Water is one of the most important resources of the State. It is essential to the development of other resources and industries. Consequently, the State's interest and activities in water resource development are far-reaching and all important.

The seven state agencies primarily concerned with the development of the water resources of the State perform a number of closely related functions. Some of these agencies perform operating functions and some are concerned with policy determination. They operate as separate entities without centralized coordination of policy or operations.

The Division of Water Resources of the Department of Public Works is the administrative agency primarily concerned with water resource activities. The State Engineer is the Chief of the Division of Water Resources and administers the functions and activities relative to water resources vested by statute in the Department of Public Works.

Various sections of the Water Code assign a number of administrative duties to the Department of Public Works. These include the conduct of investigations and surveys relative to the water resources of the State. The Division of Water Resources cooperates with the State Water Resources Board and the State Water Project Authority and prepares reports for these agencies. The division also cooperates with other agencies and associations concerned with reclamation, irrigation, flood control and watershed protection.

The Division of Water Resources administers the statutory provisions relating to the appropriation of water and is authorized to determine all issues of water rights. The Department of Finance is also authorized to appropriate such water as it deems necessary for the development and completion of the whole or any part of a general coordinated plan looking forward to the development, utilization or conservation of water resources in the State under the state water plan.

The State Water Resources Board consists of seven members appointed by the Governor subject to confirmation by the Senate. The State Engineer is secretary and engineer to the board. The principal function of the State Water Resources Board is to study all water development projects for the control and conservation of flood waters and preservation of wild life. The board also investigates local water problems upon the request of local government agencies. The Division of Water Resources conducts investigations for the Water Resources Board and the board recommends legislation relative to water problems.

The Water Project Authority of the State of California is primarily concerned with the problem of construction, operations, and maintenance of the Central Valley Project. The authority consists of five state officials as follows: Attorney General, State Controller, State Treasurer, Director of Finance, and Director of Public Works. The Director of Public Works is the chairman and the State Engineer is the executive officer.

The Reclamation Board performs a number of functions relative to the operation of drainage, conservancy and reclamation districts. The board also administers plans for flood control of the waters of the Sacramento and San Joaquin Rivers. The board consists of seven members appointed by the Governor. The Director of Finance is the executive officer.

The Colorado River Board of California and the San Luis Rey Water Authority investigate problems and recommend legislation concerned with the development of their respective river basins and watersheds. The Colorado River Board consists of six members appointed by the Governor. The board elects the Colorado River Commissioner who performs the duties of executive officer for the board. The San Luis Rey Water Authority consists of seven members appointed by the Governor.

The above list of state agencies primarily concerned with the development of the water resources of the State does not include the Department of Natural Resources. Two divisions of this department have functions related to the development of water resources. The activities of the Division of Beaches and Parks are concerned in part with the recreational use of the water resources of the State. The Division of Forestry has the responsibility of watershed protection.

Some aspects of the development of the water resources are not now performed to any great extent by any of the State agencies. One of these is the problem of watershed development and conservation. Other than protection from fire and other hazards, no state agency has much of a program related to the watershed resources. The U. S. Forest Service and the Federal Bureau of Land Management list watershed conservation as one of their multiple use programs but do not do much about it. There is a great need for research and investigation in this field which is very important to California.

All of the state agencies concerned with the development of water resources have dealings with the Federal Government. Some of these are for construction of public works. These and other problems suggest the need for coordination of the various state relationships with the Federal Government on water resource problems.

Department of Water

The message to the Legislature by the Governor, January 5, 1953, recommends the creation of a Department of Water. This message states in part that:

> "The basic need of both agriculture and industry in California is water. The greater the population of our State, the more intensified agriculture becomes, the more widespread industry is, the greater the strain is upon our water resources and the greater the water problem becomes for all our people. We must continue to develop and conserve our water resources until every drop that falls in our State is made available for beneficial use.
>
> "The ramifications of our water problems and the imminence of state administrative functions in connection with projects like the Feather River Project, indicate to me the necessity of establishing in the State Government a Department of Water under a director, with such policy-making and advisory boards as may be necessary to broaden the base and give state-wide leadership in all our water problems."

Some of the bills introduced at the 1953 Regular Session of the Legislature propose the creation of a Department of Water Resources. One of these is Senate Bill No. 1657 introduced by Senators Hatfield, Williams and Hulse. Section 5 of this bill proposes that:

> "The department shall be the representative of the State of California in all matters pertaining to the waters of California, and shall have exclusive jurisdiction over such matters except insofar as jurisdiction may be specificially vested in the State Engineer, the Public Utilities Commission, the state and regional water pollution control boards, the District Securities Commission, the State Water Resources Board, the Water Project Authority, the Colorado River Board, the Reclamation Board, the State Lands Commission, and districts and other local state agencies and political subdivisions of the State."

This bill also provides that the State Water Resources Board, Water Project Authority, Reclamation Board, Colorado River Board, and Districts Securities Commission would be in the Department of Water Resources. The State Engineer would be the chief of a proposed Division of Water Rights.

This and other proposals would segregate the water resource activities from the other activities of the Department of Public Works in order to coordinate and strengthen the administration of the water resource functions of the State. Other measures propose the transfer of the Division of Architecture. Enactment of these proposals would still leave the Department of Public Works with plenty to do in connection with the development of the State Highway System. Highways and water are two of the most important problems facing the State today. It is quite probable that a separate department for each of these functions would provide a better organization structure for the administration of these important activities.

CHAPTER 4

FISCAL AFFAIRS

The First and Second Partial Reports of the Senate Interim Committee on Governmental Organization (1951) devoted considerable attention to various aspects of the administration of fiscal affairs of the State of California. Tax and revenue administration was discussed to some extent in both of these reports.

Selected phases of fiscal management, auditing procedures, investment of state funds, and related subjects were discussed in the Second Partial Report (1951). The Senate Interim Committee on Governmental Organization has continued its study of these subjects and has selected three aspects of the administration of fiscal affairs for further anlysis and report. These are: (1) post-audit, (2) Board of Tax Appeals, and (3) Investment of State Funds.

LEGISLATIVE POST-AUDIT

The Second Partial Report of the Senate Interim Committee on Governmental Reorganization included the recommendations of the committee that "There should be established in California an independent post-audit of state agencies conducted by an auditor directly responsible to the Legislature." This recommendation was based on the finding that the absence of an independent post-audit makes it impossible for the people of California to obtain an objective report on the financial affairs of their State.

The subject of a legislative post-audit has been given further consideration by both the Senate Interim Committee on Governmental Organization and the Assembly Interim Committee on Governmental Reorganization. Senate Bill 1477 introduced by the members of the Senate Interim Committee proposes the creation of a Legislative Post-audit Committee and a Legislative Audit Bureau in charge of a Legislative Auditor to be appointed by the Legislative Post-audit Committee.

The Legislative Post-audit Committee proposed by Senate Bill 1477 would be composed of five members of the Senate and five members of the Assembly. This committee would determine the policies of the Legislative Auditor, ascertain facts, review reports and take action thereon, and make recommendations to the Legislature and to the houses thereof concerning the state audit, the revenues and expenditures of the State, its departments, subdivisions, and agencies, and such other matters as may be provided for in the Joint Rules of the Senate and the Assembly.

The post-auditing functions now performed by the Division of Audits of the Department of Finance would be transferred to the Legislative Audit Bureau. The existing title of Legislative Auditor would be changed to Legislative Fiscal Advisor. This official would continue to be appointed by and responsible to the Joint Legislative Budget Committee as discussed in Chapter 5 of this report.

The Legislative Auditor proposed in Senate Bill 1477 fulfills the requirement for independence and objectivity which is lacking in the present system, and provides machinery for assuring action on the auditor's findings and recommendations.

To properly understand the intent and purpose of this proposed measure it is essential to keep in mind the character of the post-audit function and to understand the nature and objectives of such an audit. The post-audit is a check on the State's financial records after all transactions have been completed, and attempts to establish legality and fiscal soundness of the agencies' transactions. The post-audit is distinguished from agency accounting and auditing in that this audit is conducted *after* transactions are completed.

The primary requirement for an adequate post-audit is objectivity; it must be performed independently of the agency being audited.

The post-audit serves various purposes.

First, it provides the legislative branch of government with a control over administration which does not interfere with day-to-day operation.

Second, it furnishes an independent appraisal and report on the activities performed by administrative officials.

Third, it gives administrative officials a check on their departmental staff and advises them on current problems of management in which accounting is an important element.

Fourth, it serves as a means of preventing and detecting fraud and dishonesty.

At the present time the Audits Division of the Department of Finance conducts a post-audit of the State's financial records. The Department of Finance is one of the many agencies under the Governor's jurisdiction; so when the Audits Division, which is a part of the Governor's administration, is auditing other departments in the Governor's administration, the administration, for all practical purposes, is auditing itself. More particularly, when the Audits Division of the Department of Finance audits another division such as the State Printing Plant in the same department, the department is audting itself.

It is thus apparent that the present post-audit of state accounts does not meet the fundamental requirements for a post-audit. There is no independence from the administration, and thus objectivity is lost.

Since 1939, the California Legislature has considered various proposals for establishing an independent post-audit. One bill passed in 1941 would have created the office of Auditor General and made it directly responsible to the Legislature. The measure was vetoed by the Governor. Repeated attempts have been made at every subsequent Legislature; and sentiment for an independent audit is growing continually.

TABLE 2

POST-AUDIT FUNCTIONS IN THE FORTY-EIGHT STATES

State	Officer and agency	Elected or appointed	Responsible to	Relation of authority to Governor and Legislature	Additional duties of post-auditor
ALABAMA	Chief Examiner, head of Department of Examiners of Public Accounts	Appointed by legislative committee on public accounts with Senate consent	Legislature through Legislative Committee on Public Accounts	Report made to Governor and Legislature	Determine nature of accounting system
	Auditor (post-audits Department of Finance and Treasury)	Elected	Electorate	Report made to Governor and Legislature	
ARIZONA	Post auditor	Appointed by President of Senate and Speaker of House with Legislative consent	Legislature	Report made to Governor and Legislature	Determine nature of accounting system
ARKANSAS	Comptroller	Appointed by Governor	Governor	Report made to Governor and Legislature	Determine nature of accounting system Pre-audit Internal audit
CALIFORNIA	Director of Finance	Appointed by Governor	Governor	Report made to Governor	Determine nature of accounting system Internal audit
COLORADO	Auditor	Elected	Electorate	Report made to Governor and Legislature	Determine nature of accounts for post-audit
CONNECTICUT	2 auditors of Public Accounts (of the two political parties)	Appointed by Legislature	Legislature	Report made to Governor and Legislature	Pre-audit of pay rolls for all agencies
DELAWARE	Budget Commission:			Report made to Legislature	Determine nature of accounting system Pre-audit Internal audit
	Governor	Elected	Electorate		
	Auditor of Accounts	Elected	Electorate		
	Treasurer	Elected	Electorate		
	Tax Commissioner	Appointed by Governor with Senate consent	Governor		
	Secretary of State	Appointed by Governor with Senate consent	Governor		
	(employs private accountants to supplement)				
	Auditor of Accounts is required by law to perform this function, but lacks necessary funds				
FLORIDA	Auditor	Appointed by Governor	Governor	Report made to Governor	
GEORGIA	Auditor	Appointed by Legislature	Legislature	Report made to Governor	Determine nature of accounting system Pre-audit
IDAHO	Auditor	Elected	Electorate	Report made to Governor	Determine nature of accounting system Pre-audit Internal audit Auditor is also secretary of Board of Examiners
	Bureau of Public Accounts—Governor is chief officer	Elected	Electorate	Report made to Legislature	Determine nature of accounting system
ILLINOIS	Auditor of Public Accounts (may employ private accountants to supplement)	Elected	Electorate	Report made to Budgetary Commission: Governor—elected 6 members of Legislature—elected	Determine nature of accounting system for: (1) Judicial branch of government (2) Legislative branch of government (3) Elected officials Pre-audit: Internal audit
	Director of Finance has statutory authority to post-audit Departments under Governor, but has not ordinarily performed this function	Appointed by Governor with Senate consent	Governor		
INDIANA	State Examiner, head of Board of Accounts	Appointed by Governor	Governor	Report made to Governor	Determine nature of accounting system
IOWA	Auditor	Elected	Electorate	Report made to Governor and Legislature	
KANSAS	Budget Director and Accountant	Appointed by Governor with Senate consent	Governor	Report made to Governor	Determine nature of accounting system

TABLE 2—Continued

POST-AUDIT FUNCTIONS IN THE FORTY-EIGHT STATES

State	Officer and agency	Elected or appointed	Responsible to	Relation of authority to Governor and Legislature	Additional duties of post-auditor
KENTUCKY	Auditor of Public Accounts	Elected	Electorate	Report made to Governor and Legislature	
LOUISIANA	Supervisor of Public Funds	Appointed by Governor	Governor	Report made to Governor	
MAINE	Auditor	Appointed by Legislature	Legislature	Report made to Governor and Legislature	Internal audit
MARYLAND	Auditor	Appointed by Governor	Governor and Comptroller of Treasury	Report made to Governor (and Comptroller of Treasury)	Determine nature of accounting system
MASSACHUSETTS	Auditor	Elected	Electorate	Report made to Governor and Legislature (and Comptroller)	
MICHIGAN	Auditor General	Elected	Electorate	Report made to Governor	
MINNESOTA	Public Examiner	Appointed by Governor with Senate consent	Governor	Report made to Governor Report made to any individual legislative committee upon request	Assists auditor in determining nature of accounting system
MISSISSIPPI	Auditor of Public Accounts	Elected	Electorate	Report made to Governor and Legislature	Determine nature of accounting system Pre-audit Internal audit
MISSOURI	Auditor	Elected	Electorate	Report made to Governor and Legislature	Determine nature of accounting system
MONTANA	State Examiner (post-audits Treasurer, Auditor, Secretary of State, etc.)	Appointed by Governor with Senate consent	Governor	Report made to Governor	
	Board of Examiners:				
	Governor	Elected	Electorate		
	Attorney General	Elected	Electorate		
	Secretary of State	Elected	Electorate		
	(post-audits Auditor and Treasurer)				
	Comptroller (post-audits various colleges, universities, and state institutions and other departments if he so desires)	Appointed by Governor with Senate consent	Governor	Report made to Governor	Determines nature of accounting system Pre-audit Internal audit
NEBRASKA	Auditor of Public Accounts	Elected	Electorate	Report made to Governor	Pre-audit Internal audit
	Tax Commissioner (post-audits Auditor of Public Accounts)	Appointed by Governor with legislative consent	Governor	Report made to Governor	Determine nature of accounting system Pre-audit
NEVADA	Legislative auditor	Appointed by Legislative Counsel Bureau	Legislature through Legislative Counsel Bureau	Report made to Governor and Legislature	Determine nature of accounting system
NEW HAMPSHIRE	Director of Accounts in Department of Administration and Control	Appointed by Comptroller with consent of Governor and Council	Comptroller	Report made to Governor (and Council and Comptroller)	Determine nature of accounting system Pre-audit Internal audit
NEW JERSEY	Auditor	Appointed by Legislature	Legislature	Report made to Governor and Legislature	
NEW MEXICO	Comptroller (employes private accountants to supplement)	Appointed by Governor	Board of Finance: Governor—elected Auditor—elected 3 persons appointed by Governor with Senate consent	Report made to Governor	Determine nature of accounting system Comptroller is also Executive Director of Board of Finance
NEW YORK	Comptroller, head of Department of Audit and Control	Elected	Electorate	Report made to Legislature	Determine nature of accounting system Pre-audit

TABLE 2—Continued

POST-AUDIT FUNCTIONS IN THE FORTY-EIGHT STATES

State	Officer and agency	Elected or appointed	Responsible to	Relation of authority to Governor and Legislature	Additional duties of post-auditor
NORTH CAROLINA	Auditor	Elected	Electorate	Report made to Governor and Legislature	Determine nature of accounting Pre-audit Internal audit
	Assistant Director of Budget (post-audits Treasurer and Auditor)	Appointed by Governor, who is Director of Budget	Governor	Report made to Governor	Determine nature of accounting system
NORTH DAKOTA	State Examiner (post-audits Secretary of State, Auditor, Treasurer, Commissioner of Insurance, Commissioner of Agriculture and Labor, Department of Universities and School Lands, Tax Commissioner, etc.)	Appointed by Governor with Senate consent	Governor	Report made to Banking Board: State Examiner—appointed by Governor with Senate consent 2 persons—appointed by Governor	Determine nature of accounting system
	Board of Audits: Secretary of State Auditor Attorney General (post-audits Treasurer, Bank of North Dakota, industrial institutions, and various state departments)	 Elected Elected Elected	Legislature	Report made to Governor	Determine nature of accounting system
OHIO	Auditor	Elected	Electorate	Report made to Governor	Determine nature of accounting system Pre-audit Internal audit
OKLAHOMA	Examiner and Inspector	Elected	Electorate	Report made to Governor	Determine nature of accounting system for Treasury Department
OREGON	Secretary of State	Elected	Electorate	Report made to Governor and Legislature	Accounting system subject to approval of Secretry of State Pre-audit
PENNSYLVANIA	Auditor General	Elected	Electorate	Report made to Governor and Legislature	Consulted in determining nature of accounting system Pre-audit
RHODE ISLAND	Private firm of public accountants	Appointed by Finance Committee of House of Representatives	Finance Committee of House of Representatives	Report made to Governor and Finance Committee of House of Representatives	
SOUTH CAROLINA	Auditor	Appointed by Budget and Control Board	Budget and Control Board	Report made to Budget and Control Board: Governor—elected Treasurer—elected Comptroller General—elected Chairman Senate Finance Committee—elected Chairman House Ways and Means Committee—elected	Determine nature of accounting system Internal
SOUTH DAKOTA	Comptroller, head of Department of Audits and Accounts	Appointed by Legislature	Legislature	Report made to Governor and Legislature	Determine nature of accounting system Pre-audit Internal audit
TENNESSEE	Comptroller of Treasury, head of Department of Audits	Appointed by Legislature from Civil Service Register	Legislature	Report made to Legislature	Determine nature of accounting system Internal audit
TEXAS	Auditor	Appointed by Legislative Audit Committee with Senate consent	Legislature through Legislative Audit Committee	Report made to Governor and Legislature	Determine nature of accounting system
UTAH	Auditor	Elected	Electorate and Legislature	Report made to Governor and Legislature	

TABLE 2—Continued

POST-AUDIT FUNCTIONS IN THE FORTY-EIGHT STATES

State	Officer and agency	Elected or appointed	Responsible to	Relation of authority to Governor and Legislature	Additional duties of post-auditor
VERMONT	Auditor of Accounts	Elected	Electorate	Report made to Legislature	Determine nature of accounting system Pre-audit Internal audit
	Private firm of auditors (post-audits Treasurer, Auditor of Accounts, and Commissioner of Taxes)	Appointed by Emergency Board	Emergency Board	Report made to Emergency Board: Governor—elected Chairman Senate Appropriation Committee—elected Chairman Senate Finance Committee—elected Chairman House Appropriation Committee—elected Chairman House Ways and Means Committee—elected	
VIRGINIA	Auditor of Public Accounts	Appointed by Legislature	Legislature	Report made to Governor and Legislature	Determine nature of accounting system
WASHINGTON	Auditor	Elected	Electorate	Report made to Governor	Pre-audit
WEST VIRGINIA	Tax Commissioner	Appointed by Governor with Senate consent	Governor	Report made to Governor	
	Auditor (post-audits Tax Commissioner)	Elected	Electorate	Report made to Governor	Pre-audit
WISCONSIN	Auditor	Appointed by Governor with Senate consent	Legislature	Report made to Governor and Legislature	
WYOMING	State Examiner (post-audits all departments except Auditor)	Appointed by Governor with Senate consent	Governor	Report made to Governor	Internal audit

Method of Selection

The method by which an auditor is selected greatly affects the character of the audit and to a large extent determines whether or not the audit will be truly objective. In this respect, it may be well to analyze the practice in other states. There are three principal methods by which the auditor is selected. The auditor is elected in 19 states; in 15 states the auditor is appointed by the Governor; and in 12 states the auditor is selected by the Legislature. There has been a trend to appointment by the Legislature starting in Maryland in 1932. The practices of the various states are shown in Table 2.

Election

Some have suggested that the auditor, in order to secure complete objectivity and responsibility to the people, should be elected. Some authorities, however, believe that this is not the type of position which can best be filled by the elective process. It is a job requiring a certain degree of technical competence and experience for which the elective process is not designed. In addition, an elected official would be concerned with political considerations which may interfere with the necessary objectivity. If the audit function is to be properly performed, audit reports must be placed in the hands of some agency which can act to correct errors or inefficiencies.

Contract

It has been proposed that private accounting firms should be employed to conduct an independent audit.

There are several weaknesses to this type of procedure. Governmental accounting is different from business accounting because of legal requirements within which government functions. A governmental agency operates under specific and particular authority, whereas private business may operate within any area not specifically prohibited. The auditor of government accounts must be thoroughly familiar with all laws, rules, regulations and administrative orders if he is to determine legality and compliance with fiscal procedure. This evaluation requires constant study of all laws, rules and regulations. A permanent staff which can familiarize itself with the law and keep itself abreast of current changes can function more economically and efficiently.

If private companies were to conduct the post-audit, it would be desirable to employ a different company each year or every few years, and every time a new company was engaged, it would have to familiarize itself anew with all laws and rules. This constant turnover would impose a great additional expense upon the audit activity.

In addition to researching the laws, a private company would have to familiarize itself with the different types of accounting systems required by the great diversity of government function. This too, would impose an additional expense upon the contracting companies.

A recent report of the *California Certified Public Accountant* (May, 1951) has this to say about the public accountant in municipal governments:

"Too often an incomplete audit results from a notion of false economy on the part of councils, considering cost alone. Equally often, an inadequate audit results when some perhaps otherwise capable accountant, public accountant or certified public accountant, tries his hand at a municipal audit without the necessary specialized knowledge of budgetary and fund accounting and the laws regulating municipal special revenue funds.''

It is suggested that installation of an effective accounting system would facilitate the post-audit and make it possible to employ a private firm at a minimum cost. If this is based on the assumption that only the central accounting records would need auditing under such circumstances, this would appear to be a basic departure from sound auditing practice. If it is meant that a sound accounting system would make for more economical auditing, the economy would accrue just as readily to a state agency as to an independent contractor.

A more important factor militating against the contracting method is the use which should be made of audit reports. These reports often contain recommendations for necessary improvements; and unless these reports are given to the body which can act upon them, they serve no purpose. A report to the 10,000,000 people of California would serve no practical purpose.

If it were determined that auditing should be done by a public accounting firm, the method of selecting the private company poses another complication. Who selects the company and to whom does it report? How can independent and objective selection be assured?

But there is still a further problem presented by this proposal to employ public accounting firms. Article XXIV of the State Constitution requires that all employees of the State, with certain enumerated exceptions, must be selected under provisions of the Civil Service Law. The only exceptions allowed in this Civil Service Law, in addition to those enumerated, are individuals performing services which cannot be secured through the normal civil service examination process. If the work required is such that persons may be recruited through the normal civil service examination process, then the work must be performed by people selected in this manner. Since auditors have been selected and are currently employed by the State in the Division of Audits, the terms of Article XXIV would seem to prevent employing independent contractors.

It is suggested that Article XXIV permits the Legislature to employ persons without regard to the classified service; and therefore the Legislature could appoint the private contracting party. This contention fails to take account of the basic purpose behind Article XXIV. This article is not limited to an enumeration of civil service classifications, but describes the method by which all persons working for the State of California are to be selected. Some are to be selected by the civil service examination process, and others by the Legislature, the people, etc.; but the unquestioned intent of this article is to specify the method by which all State services are performed.

Paragraph (4) (a) in Section 4 of Article XXIV provides that employees ''directly appointed or employed by the Legislature'' need not be secured through the examining process, but this paragraph would not allow the Legislature to engage an independent contractor to perform state services. All persons working for the Legislature must be directly appointed by the Legislature.

Legislative Appointment

The auditor may be appointed by the Legislature and made responsible to the people through that body. As pointed out above, there is an increasing precedent for this type of appointment.

There are substantial reasons why the Legislature should select the auditor.

It is the Legislature's responsibility to see that expenditures are made in accordance with the State Budget, and only through the proper type of post-audit reporting to the Legislature can this be determined.

Accounting to the people is attained through an accounting to the people's representatives in the Legislature who are charged with providing the means for government services.

An auditor selected by and responsible to the Legislature would be independent of the administration and thus could present an objective and impartial analysis of each agency's financial records.

To fulfill his responsibilities, the auditor prepares a report setting forth the facts and conditions he has discovered in the course of his audit. These reports call for action by the administration or by the Legislature, and they should be made to the body which has the greatest responsibility to see that corrections are installed.

The crucial point in this entire matter is that a sound post-audit is needed now, and it would be possible to effect the change proposed here with a minimum of adjustment. The only action required is to transfer an existing state agency from one branch of the government to another. The need for an independent post-audit exists today.

BOARD OF TAX APPEALS

The Second Partial Report of the Senate Interim Committee on Governmental Reorganization (1951) included the recommendation of the committee that further study should be given to eliminating present obstacles in the way of creating a unified revenue department for the State of California. The committee also recommended that provision be made for the determination of tax appeals and tax claims by an independent agency that did not have any of the functions of tax administration.

The integration of the revenue administrative agencies of State Government was one of the significant developments of the reorganization movement of the early 1920's. Approximately one-fourth of the states now have a single department or agency for the administration of the state's revenue system. The organization structures of such agencies were described in the first report of the committee (1951).

When a single agency such as a Department of Revenue is established to administer all revenue laws, provision is usually made for an independent Board of Tax Appeals to hear appeals from administrative decisions. Consolidation of revenue agencies, however, is not an essential prerequisite for the establishment of an independent appeals agency.

The two principal revenue agencies in California at the present time are the State Board of Equalization and the Franchise Tax Board. The State Board of Equalization administers the Sales and Use Tax Law, the Motor Vehicle Fuel License Tax Law, the Use Fuel Tax Law, the Motor Vehicle Transportation License Tax Law, the Private Car Tax Law, the Alcohol Beverage Control Act and the provisions of the Revenue and Taxation Code for the taxation of insurance companies.

The Franchise Tax Board administers the Personal Income Tax Law and the Bank and Corporation Tax Law. This board is composed of the State Controller, the Chairman of the State Board of Equalization and the Director of Finance.

The State Board of Equalization hears appeals from decisions of its various divisions and also hears appeals from the administrative decisions of the Franchise Tax Board. Since two members of the Franchise Tax Board are also members of the State Board of Equalization, this board, in effect, hears appeals from its own decisions.

Senate Bill 778 introduced by the members of the Senate interim committee proposes to establish a Board of Tax Appeals consisting of five members to be appointed by the Governor with the consent of the Senate. The appeals functions now exercised by the State Board of Equalization would be transferred to the independent Board of Tax Appeals.

Section 9 of Article XIII of the California Constitution now provides that the boards of supervisors of the several counties shall constitute boards of equalization for their respective counties to equalize the valuation of taxable property in the county for the purpose of taxation. The State Board of Equalization has authority to equalize the valuation in the several counties and may raise or lower the county valuation. The county boards of equalization, however, have authority for equalization *within* the county.

Senate Constitutional Amendment No. 12 also introduced by the members of the Senate Interim Committee on Governmental Organization is a companion measure to Senate Bill 778. This measure proposes an amendment to the Constitution to permit the Legislature to vest the proposed Board of Tax Appeals with authority to hear and determine appeals from the decisions of county boards of equalization on questions involving the valuation of property for tax purposes. The only relief that a property taxpayer now has from adverse decisions of the county boards of equalization is to the superior court. The courts generally limit their jurisdiction in such cases to questions of law whereas questions of fact are usually the ones of most interest to the taxpayer.

An administrative agency such as the proposed Board of Tax Appeals would provide a simple and direct means of appeal for review of tax assessments. Questions of fact could be considered and appraised. The separation of the functions of tax administration and appeals would provide an unbiased approach to the technical problems of review of tax assessments.

SEE PAGE 47 FOR DISCUSSION OF TABLE 3

TABLE 3

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
ALABAMA	Treasurer with Governor's approval	Temporary treasury surpluses	Treasurer with Governor's approval	Temporary treasury surpluses	Treasurer with Governor's approval	Temporary treasury surpluses	Treasurer—elected
	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System: Governor—elected Treasurer—elected Personnel director—appointed by Personnel Board, which is appointed by Governor with Senate consent
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Education—elected Treasurer—elected Director of Finance—appointed by Governor Executive secretary Alabama Education Association 3 members of Retirement System—appointed by other members
ARIZONA	Temporary treasury surpluses are not invested						
	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System: Treasurer—elected State Auditor—elected Personnel Officer—elected 4 members of Retirement system—elected
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: 1 person with experience in life insurance or investment business—appointed by Governor 1 person with experience in bank or Trust Co.—appointed by Governor 1 person—appointed by Governor 2 members of Retirement System—appointed by Governor
	Treasurer	Judges Retirement Fund	Treasurer	Jugdes Retirement Fund	Treasurer	Judges Retirement Fund	Treasurer—elected
ARKANSAS	Board of Fiscal Control	Temporary treasury surpluses	Board of Fiscal Control	Temporary treasury surpluses	Board of Fiscal Control	Temporary treasury surpluses	Board of Fiscal Control: Governor—elected (may vote only in case of tie) Treasurer—elected Auditor—elected Attorney General—elected Comptroller—appointed by Governor Director of Highways—appointed by Governor Commissioner of Revenues—appointed by Governor with Senate consent Bank Commissioner—appointed by Governor with Senate consent

	Board of Trustees Teachers Retirement System	Teachers Retirement System funds	Board of Trustees Teachers Retirement System	Teachers Retirement System funds	Board of Trustees Teachers Retirement System	Teachers Retirement System funds	Board of Trustees Teachers Retirement System: Treasurer—elected Bank Commissioner—appointed by Governor with Senate consent Insurance Commissioner—appointed by Governor with Senate consent Commissioner of Education—appointed by Board of Education, which is appointed by Governor with Senate consent 5 members of Retirement System—appointed by other members
	Board of Trustees State Police Retirement System	State Police Retirement System funds	Board of Trustees State Police Retirement System	State Police Retirement System funds	Board of Trustees State Police Retirement System	State Police Retirement System funds	Board of Trustees State Police Retirement System: Chairman Police Commission—appointed by Governor with Senate consent Director of State Police—appointed by Governor 1 member of Police Commission—appointed by other members who are appointed by Governor with Senate consent 2 members of Retirement System—appointed by other members
CALIFORNIA...	Treasurer and Director of Finance	Temporary treasury surpluses	Director of Finance	Temporary treasury surpluses	Director of Finance	Temporary treasury surpluses	Treasurer—elected Director of Finance—appointed by Governor
	Board of Administration of State Employee Retirement System	State Employees Retirement System funds	Board of Administration State Employee Retirement System	State Employees Retirement System funds	Board of Administration State Employee Retirement System and Director of Finance	State Employees Retirement System funds	Board of Administration State Employee Retirement System: Director of Finance—appointed by Governor 1 bank officer—appointed by Governor 1 life insurance company official—appointed by Governor 1 member Personnel Board—appointed by Board, which is appointed by Governor with Senate consent 1 official of University of California—appointed by regents (⅔ of whom are appointed by Governor) 3 members of Retirement System—appointed by other members
	Teacher Retirement Investment Board	Teacher Retirement System funds	Teacher Retirement Investment Board	Teacher Retirement System funds	Teacher Retirement Investment Board	Teacher Retirement System funds	Teacher Retirement Investment Board: Superintendent of Public Instruction—elected Comptroller—elected Director of Finance—appointed by Governor 2 members of Retirement System—appointed by Board of Education, which is appointed by Governor with Senate consent
	Governor, Treasurer, and Comptroller with approval of Director of Finance	Judges Retirement fund	Governor, Treasurer, and Comptroller with approval of Director of Finance	Judges Retirement fund	Governor, Treasurer, and Comptroller with approval of Director of Finance	Judges Retirement fund	Treasurer—elected Comptroller—elected Director of Finance—elected

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
COLORADO	Treasurer	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer—elected
	Board of Trustees Public Employee Retirement System	Public Employee Retirement System funds	Board of Trustees Public Employees Retirement System	Public Employee Retirement System funds	Treasurer	Public Employee Retirement System funds	Board of Trustees Public Employee Retirement System: Auditor—elected Treasurer—elected Secretary of State—elected Not more than 10 members or Retirement System—appointed by other members
CONNECTICUT	Treasurer with approval of Investment Commission	Temporary treasury surpluses and Teacher Retirement System funds	Treasurer with approval of Investment Commission	Temporary treasury surpluses and Teacher Retirement System funds	Treasurer with approval of Investment Commission	Temporary treasury surpluses and Teacher Retirement System funds	Treasurer—elected Investment Commission: Commissioner of Finance and Control—appointed by Governor 2 persons with investment experience—appointed by Governor Upon advice of Investment Commission, Governor may direct Treasurer to change investments, when, in opinion of Commission, such action is for best interest of State
DELAWARE	Temporary treasury surpluses are not invested There are no retirement system funds to invest						
FLORIDA	Temporary treasury surpluses are not invested						
	Finance Board of State Officers and Employee Retirement System	State Officers and Employee Retirement System funds	Finance Board of State Officers and Employee Retirement System	State Officers and Employee Retirement System funds	Finance Board of State Officers and Employee Retirement System	State Officers and Employee Retirement System funds	Finance Board of State Officers and Employee Retirement System: Governor—elected Comptroller—elected Treasurer—elected
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Board of Education: Governor—elected Secretary of State—elected Attorney General—elected Treasurer—elected Superintendent of Public Instruction—elected 2 members of Retirement System—appointed by Governor
GEORGIA	Temporary treasury surpluses are not invested						
	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System: Insurance Commissioner—appointed by Governor Auditor—appointed by Legislature Merit System Director—appointed by Merit System council, which is appointed by Governor 1 person—appointed by Governor 2 members of Retirement System—appointed by above trustees 1 person with investment business experience—appointed by above trustees

	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Insurance Commissioner—appointed by Governor Auditor—appointed by Legislature Secretary of Georgia Education Association [illegible] members of Retirement System—appointed by Georgia Education Association 1 person with investment business experience—appointed by above trustees
IDAHO	Treasurer	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer—elected
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Commissioner of Public Investment at direction of Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Public Instruction—elected Auditor—elected 1 member of Board of Education—appointed by Board of Education (Superintendent of Public Instruction and 5 persons appointed by Governor) 2 members of Retirement System—appointed by Idaho Education Association
	Director of State Insurance Fund	Firemen's Retirement Fund	Treasurer	Firemen's Retirement fund	Treasurer	Firemen's Retirement Fund	Commissioner of Public Investment—appointed by Governor Director of State Insurance Fund—appointed by Governor
ILLINOIS	Treasurer with Governor approval	Temporary treasury surpluses	Treasurer with Governor's approval	Temporary treasury surpluses	Treasurer with Governor's approval	Temporary treasury surpluses	Treasurer—elected
	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System: Auditor of Public Accounts—elected Director of Finance—appointed by Governor with Senate approval 1 person—appointed by Governor 2 members of Retirement System—appointed by Governor
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Public Instruction—elected Treasurer—elected 3 members of Retirement System—appointed by Governor
	Board of Trustees University Retirement System	University Retirement System funds	Board of Trustees University Retirement System	University Retirement System funds	Board of Trustees University Retirement System	University Retirement System funds	Board of Trustees University Retirement System: 3 members—Board of Trustees University of Illinois—appointed by that Board, which is elected 1 member Board of Trustees Southern Illinois University—appointed by that Board which is appointed by Governor with Senate consent 1 member Teachers College Board—appointed by that Board, which is appointed by Governor with Senate consent Director of Registration and Education—appointed by Governor with Senate consent

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
ILLINOIS —Continued	Board of Trustees Judges Retirement System	Judges Retirement System funds	Board of Trustees Judges Retirement System	Judges Retirement System funds	Board of Trustees Judges Retirement System	Judges Retirement System funds	Board of Trustees Judges Retirement System: Treasurer—elected Chief Justice of Supreme Court—elected 3 members of Retirement System—appointed by Supreme Court, which is elected
INDIANA	Temporary treasury surpluses are not invested						
	Board of Trustees Public Employee Retirement Fund	Public Employee Retirement Fund	Board of Trustees Public Employee Retirement Fund	Public Employee Retirement Fund	Board of Trustees Public Employee Retirement Fund	Public Employee Retirement fund	Board of Trustees Public Employee Retirement Fund: 4 persons—appointed by Governor 1 member of Retirement System—appointed by Governor
	Board of Trustees Teacher Retirement Fund	Teacher Retirement Fund	Board of Trustees Teacher Retirement Fund	Teacher Retirement funds	Board of Trustees Teacher Retirement Fund	Teacher Retirement Fund	Board of Trustees Teacher Retirement Fund: 3 persons—appointed by Governor 2 members of Retirement System—appointed by Governor
	Board of Trustees Board of Accounts Retirement Fund	Board of Accounts Retirement Fund	Board of Trustees Board of Accounts Retirement Fund	Board of Accounts Retirement Fund	Treasurer at direction of Board of Trustees of Board of Accounts Retirement Fund	Board of Accounts Retirement Fund	Board of Trustees Board of Accounts Retirement Fund: State Examiner—appointed by Governor 3 members or Retirement System—appointed by other members 1 person with investment business experience—appointed by above trustees.
	Treasurer	State Police Retirement Fund	Treasurer	State Police Retirement Fund	Treasurer	State Police Retirement Fund	Treasurer—elected
IOWA	Treasurer with approval of Executive Council	Temporary treasury surpluses	Treasurer with approval of Executive Council	Temporary treasury surpluses	Treasurer with approval of Executive Council	Temporary treasury surpluses	Executive Council: Governor—elected Secretary of State—elected Auditor—elected Treasurer—elected Secretary of Agriculture—elected
	Treasurer and Employment Security Commission	Old Age and Survivors Insurance Trust Fund	Treasurer and Employment Security Commission	Old Age and Survivors Insurance Trust Fund	Treasurer and Employment Security Commission	Old Age and Survivors Insurance Trust Fund	Employment Security Commission: 1 representative of labor—appointed by Governor with Senate consent 1 representative of employers—appointed by Governor with Senate consent 1 representative of general public—appointed by Governor with Senate consent
KANSAS	Temporary treasury surpluses are not invested						
	Board of Trustees School Retirement System	School Retirement System funds	Board of Trustees School Retirement System	School Retirement System funds	Board of Trustees School Retirement System	School Retirement System funds	Board of Trustees School Retirement System: Superintendent of Public Instruction—elected Treasurer—elected 3 persons—appointed by Governor 1 member of Retirement System—appointed by Governor

	State Highway Patrol Pension Board	State Highway Patrol Pension funds	State Highway Patrol Pension Board	State Highway Patrol Pension funds	State Highway Patrol Pension Board	State Highway Patrol Pension funds	State Highway Patrol Pension Board: Governor—elected Treasurer—elected 1 member of Retirement System—appointed by other members
KENTUCKY	Sinking Fund Commission	Temporary treasury surpluses	Sinking Fund Commission	Temporary treasury surpluses	Sinking Fund Commission	Temporary treasury surpluses	Sinking Fund Commission: Governor—elected Treasurer—elected Attorney General—elected Commissioner of Revenue—appointed by Governor Commissioner of Finance—appointed by Governor
	Teacher Retirement System Board	Teacher Retirement System funds	Teacher Retirement System Board	Teacher Retirement System funds	Teacher Retirement System Board	Teacher Retirement System funds	Teacher Retirement System Board: Superintendent of Public Instruction—elected Treasurer—elected Attorney General—elected 4 members of Retirement System—appointed by other members
LOUISIANA	Temporary treasury surpluses are not invested						
	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employee Retirement System: Chairman of Appropriation Committee of House of Representatives—elected Chairman of Finance Committee of Senate—elected 1 person with investment banking experience—appointed by Governor 4 members of Retirement System—appointed by other members
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Education—elected Secretary of State—elected Treasurer—elected Secretary of Louisiana Teachers Association—5 members of Retirement System—appointed by other members
	Board of Trustees School Employees Retirement System	School Employees Retirement funds	Board of Trustees School Employees Retirement System	School Employees Retirement System funds	Board of Trustees School Employees Retirement System	School Employees Retirement System funds	Board of Trustees School Employees Retirement System: President of Board of Education—elected Chairman of Appropriations Committee of House of Representatives—elected Chairman of Finance Committee of Senate—elected Treasurer—elected 4 members of Retirement System—appointed by other members
	State Police Retirement Board	State Police Retirement funds	State Police Retirement Board	State Police Retirement funds	State Police Retirement Board	State Police Retirement funds	State Police Retirement Board: Treasurer—elected Auditor—elected Director of State Police—appointed by Director of Public Safety, who is appointed by Governor with Senate consent
MAINE	Treasurer	Temporary treasury surpluses	Treasurer with approval of Governor and Council	Temporary treasury surpluses	Treasurer with approval of Governor and Council	Temporary treasury surpluses	Treasurer—appointed by Legislature Council—7 persons appointed by Legislature

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
MAINE —Continued	Board of Trustees Employees Retirement System	Employees Retirement System funds	Board of Trustees Employees Retirement System	Employees Retirement System funds	Board of Trustees Employees Retirement System	Employees Retirement System funds	Board of Trustees Employees Retirement System: Chairman Personnel Board—appointed by Governor with Council consent Comptroller—appointed by Commissioner of Finance with consent of Governor and Council Treasurer—appointed by Legislature
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Treasurer with approval of Bank Commissioner, Commissioner of Education, and Commissioner of Finance	Teacher Retirement System funds	Treasurer with approval of Bank Commissioner, Commissioner of Education, and Commissioner of Finance	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Bank Commissioner—appointed by Governor with Council consent Commissioner of Education—appointed by Governor with Council consent Insurance Commissioner — appointed by Governor and Council Treasurer—appointed by Legislature Attorney General—appointed by Legislature 2 members of Retirement System—appointed by other members Commissioner of Finance — appointed by Governor with Council consent
MARYLAND...	Board of Public Works	Temporary treasury surpluses	Board of Public Works	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Board of Public Works Governor—elected Comptroller or treasury—elected Treasurer—appointed by Legislature
	Board of Trustees Employee Retirement System	Employees Retirement System funds	Board of Trustees Employee Retirement System	Employee Retirement System funds	Treasurer	Employees Retirement System funds	Board of Trustees Employees Retirement System: Comptroller or Treasury — elected Employment Commissioner — appointed by Governor Budget Director — appointed by Governor Treasurer — appointed by Legislature 1 member of Retirement System—appointed by Board of Public Works 2 members of Retirement System—appointed by other members
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System Funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Comptroller of Treasury—elected Superintendent of Education—appointed by Board of Education, which is appointed by Governor Treasurer — appointed by Legislature 2 members of Retirement System — appointed by other members

	Board of Trustees State Police Retirement System	State Police Retirement System funds	Board of Trustees State Police Retirement System	State Police Retirement System funds	Board of Trustees State Police Retirement System	State Police Retirement System funds	Board of Trustees State Police Retirement System: Comptroller of treasury — elected Budget Director — appointed by Governor Superintendent of State Police—appointed by Governor Treasurer — appointed by Legislature 1 member of Retirement System—appointed by Board of Public Works
MASSACHUSETTS	Treasurer with approval of Governor and Council	Temporary treasury surpluses	Treasurer with approval of Governor and Council	Temporary treasury surpluses	Treasurer with approval of Governor and Council	Temporary treasury surpluses	Treasurer—elected Council: Lieutenant Governor—elected 8 persons—elected
	Treasurer with approval of Investment Commission	State Employee Retirement System funds and Teacher Retirement System funds	Treasurer with approval of Investment Commission	State Employee Retirement System funds and Teacher Retirement System funds	Treasurer with approval of Investment Commission	State Employee Retirement System funds and Teacher Retirement System funds	Investment Commission: Treasurer—elected Commissioner of Banks—appointed by Governor with Council consent 1 person with investment business experience—appointed by above 2
MICHIGAN	Treasurer	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer—elected
	Administrative Board	Employees Retirement System funds	Administrative Board	Employees Retirement System funds	Administrative Board	Employees Retirement System funds	Administrative Board: Governor—elected Lt. Governor—elected Attorney General—elected Treasurer—elected Highway Commissioner—elected Superintendent of Public Instruction—elected Secretary of State—elected Auditor General—elected
	Board of Trustees Public School Employees Retirement System with approval of Treasurer	Public School Employee Retirement System funds	Board of Trustees Public School Employees Retirement System with approval of Treasurer	Public School Employees Retirement System funds	Board of Trustees Public School Employees Retirement System with approval of Treasurer	Public School Employees Retirement System funds	Board of Trustees Public School Employees Retirement System: Superintendent of Public Instruction—elected 6 members of Retirement System—appointed by Governor
MINNESOTA	Auditor	Temporary treasury surpluses and	Board of Investment	Temporary treasury surpluses and	Board of Investment	Temporary treasury surpluses and	Board of Investment: Governor—elected Auditor—elected Treasurer—elected Attorney General—elected 1 member of State University Board of Regents—appointed by Legislature
	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds		Public Employees Retirement System funds		Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System: Auditor—elected Treasurer—elected Commissioner of Insurance—appointed by Governor with Senate consent 9 members of Retirement System—appointed by other members
	Board of Trustees State Employees Retirement System	State Employees Retirement System funds		State Employees Retirement System funds and		State Employees Retirement System funds and	Board of Trustees State Employee Retirement System: Auditor—elected Treasurer—elected Commissioner of Insurance—appointed by Governor with Senate consent 4 members of Retirement System—appointed by other members

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
MINNESOTA —Continued	Board of Trustees Teacher Retirement System	Teacher Retirement System funds		Teacher Retirement System funds		Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Auditor—elected Commissioner of Education—appointed by Board of Education, which is appointed by Governor with Senate consent Commissioner of Insurance—appointed by Governor with Senate consent 2 members of Retirement System—appointed by other members
				and		and	
	Board of Trustees Highway Patrolmen Retirement System	Highway Patrolmen Retirement System funds		Highway Patrolmen Retirement System funds		Highway Patrolmen Retirement System funds	Board of Trustees Highway Patrolmen Retirement System: Treasurer—elected Chief of Highway Patrol—appointed by Highway Commissioner, who is appointed by Governor with Senate consent 1 member of Retirement System—appointed by other members
MISSISSIPPI	Temporary treasury sur	pluses are not invested					
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Education—elected Insurance Commissioner—elected Treasurer—elected 3 members of Retirement System—appointed by Governor
MISSOURI	Temporary treasury sur	pluses are not invested					
	Board of Trustees Public School Retirement System	Public School Retirement System funds	Board of Trustees Public School Retirement System	Public School Retirement System funds	Board of Trustees Public School Retirement System	Public School Retirement System funds	Board of Trustees Public School Retirement System: Commissioner of Education—appointed by Board of Education, which is appointed by Governor with Senate consent 2 persons—appointed by Board of Education, which is appointed by Governor with Senate consent 2 members of Retirement System—appointed by other members
	(in districts of less tha	n 75,000 population)					
MONTANA	Treasurer with approval of Depository Board	Temporary treasury surpluses	Treasurer with approval of Depository Board	Temporary treasury surpluses	Treasurer with approval of Depository Board	Temporary treasury surpluses	Depository Board: Governor—elected Auditor—elected Treasurer—elected
	Board of Administration Public Employees Retirement System	Public Employees Retirement System funds	Board of Administration Public Employees Retirement System	Public Employees Retirement System funds	Board of Administration Public Employees Retirement System	Public Employees Retirement System funds	Board of Administration Public Employees Retirement System: 2 persons—appointed by Governor 3 members of Retirement System—appointed by Governor
	Board of Administration Teacher Retirement System	Teacher Retirement System funds	Board of Administration Teacher Retirement System	Teacher Retirement System funds	Board of Administration Teacher Retirement System	Teacher Retirement System funds	Board of Administration Teacher Retirement System: Superintendent of Public Instruction—elected Treasurer—elected

							Attorney General—elected 2 members of Retirement System—appointed by Board of Education (Governor, Superintendent of Public Instruction, Attorney General, and 8 persons appointed by Governor with Senate consent)
NEBRASKA	Treasurer with approval of Governor and Auditor of Public Accounts	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Treasurer—elected Auditor of Public Accounts—elected
	Board of Education Lands and Funds	School Retirement System funds and Safety Patrolmens Retirement System funds	Board of Education Lands and Funds	School Retirement System funds and Safety Patrolmens Retirement System funds	Board of Education Lands and Funds	School Retirement System funds and Safety Patrolmens Retirement System funds	Board of Education Lands and Funds: Governor—elected Treasurer—elected Secretary of State—elected Attorney General—elected Superintendent of Public Instruction—elected
NEVADA	Temporary treasury surpluses are not invested Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Finance	Public Employees Retirement System funds	Board of Finance	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System: 2 persons—appointed by Governor 3 members of Retirement System—appointed by Governor Board of Finance: Governor—elected Treasurer—elected Comptroller—elected 2 persons—appointed by Governor
	Board of Trustees Public School Teacher Retirement System	Public School Teacher Retirement System funds	Board of Trustees Public School Teacher Retirement System	Public School Teacher Retirement System funds	Board of Trustees Public School Teacher Retirement System	Public School Teacher Retirement System funds	Board of Trustees Public School Teacher Retirement System: Governor—elected Superintendent of Public Instruction—elected 5 persons—appointed by Governor
NEW HAMPSHIRE	Treasurer with approval of Governor and Council Board of Trustees Employee Retirement System	Temporary treasury surpluses Employee Retirement System funds	Treasurer with approval of Governor and Council Board of Trustees Employee Retirement System	Temporary treasury surpluses Employee Retirement System funds	Treasurer with approval of Governor and Council Board of Trustees Employee Retirement System	Temporary treasury surpluses Employee Retirement System funds	Treasurer—appointed by Legislature Council—5 elected persons Board of Trustees Employee Retirement System: 3 persons with business experience—appointed by Governor with Council consent 2 members of Retirement System—appointed by Governor with Council consent from list submitted by members of system
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Employee Retirement System: Bank Commissioner—appointed by Governor with Council consent Commissioner of Education—appointed by Board of Education (Governor and 7 persons appointed by Governor and Council) Treasurer—appointed by Legislature 2 members of Retirement System—appointed by Governor and Council

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
NEW HAMPSHIRE —Continued	Board of Trustees Policemens Retirement System	Policemens Retirement System funds	Board of Trustees Policemens Retirement System	Policemens Retirement System funds	Treasurer	Policemens Retirement System funds	Board of Trustees Policemens Retirement System: Comptroller—appointed by Governor with Council consent Treasurer—appointed by Legislature 2 persons—appointed by Governor with Council consent 3 members of Retirement System—appointed by Governor with Council consent from list submitted by members of system
NEW JERSEY	Temporary treasury surpluses are not invested						
	Director of Division of Investment with approval of Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Director of Division of Investment with approval of Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Director of Division of Investment with approval of Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Director of Division of Investment in Department of Treasury—appointed by Treasurer from list submitted by Investment Council Treasurer—appointed by Governor with Senate consent Investment Council (advisory body to Director of Division of Investment): 1 member Board of Trustees State Employees Retirement System—appointed by said Board Treasurer—appointed by Governor with Senate consent 6 members of Retirement system—appointed by other members
	Director of Division of Investment with approval of Board of Trustees Teacher Pension and Annuity fund	Teacher Pension and Annuity Fund	Director of Division of Investment with approval of Board of Trustees Teacher Pension and Annuity fund	Teacher Pension and Annuity fund	Director of Division of Investment with approval of Board of Trustees Teacher Pension and Annuity fund	Teacher Pension and Annuity fund	1 member Board of Trustees Teacher Pension and Annuity Fund—appointed by said Board: Commissioner of Education—appointed by Governor with Senate consent Treasurer—appointed by Governor with Senate consent 1 person—appointed by Governor 3 members of Retirement System—appointed by other members 1 person--appointed by above trustees
	Director of Division of Investment with approval of Board of Trustees Police and Firemens Retirement System	Police and Firemens Retirement System funds	Director of Division of Investment with approval of Board of Trustees Police and Firemens Retirement System	Police and Firemens Retirement System funds	Director of Division of Investment with approval of Board of Trustees Police and Firemens Retirement System	Police and Firemens Retirement System funds	1 member Board of Trustees Police and Firemens Retirement System appointed by said Board: Treasurer—appointed by Governor with Senate consent 1 state officer—appointed by Governor 1 person—appointed by Governor 1 policeman—appointed by members of Retirement System 1 fireman—appointed by members of Retirement System

	Director of Division of Investment with approval of Prison officers Pension Commission	Prison Officers Pension Commission funds	Director of Division of Investment with approval of Prison Officers Pension Commission	Prison Officers Pension Commission funds	Director of Division of Investment with approval of Prison Officers Pension Commission	Prison Officers Pension Commission funds	1 member Prison Officers Pension Commission appointed by said Commission: Governor—elected Treasurer—appointed by Governor with Senate consent Comptroller—appointed by Governor with Senate consent 3 members of Retirement System—appointed by other members 1 person—appointed by above Commissioners 3 persons with experience in investment and finance—appointed by Governor 2 persons—appointed by Governor
	Director of Division of Investment with approval of Treasurer	State Police Retirement System funds	Director of Division of Investment with approval of Treasurer	State Police Retirement System funds	Director of Division of Investment with approval of Treasurer	State Police Retirement System funds	
NEW MEXICO	Treasurer with approval of Board of Finance	Temporary treasury surpluses	Treasurer with approval of Board of Finance	Temporary treasury surpluses	Treasurer with approval of Board of Finance	Temporary treasury surpluses	Treasurer—elected Board of Finance: Governor—elected Auditor—elected 3 persons—appointed by Governor with Senate consent
	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Treasurer	Public Employees Retirement System funds	Treasurer	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System: Auditor—elected Treasurer—elected Secretary of State—elected 4 members of Retirement System—appointed by other members
	Education Budget Auditor and Superintendent of Public Instruction	Teacher Retirement Fund	Treasurer	Teacher Retirement Fund	Treasurer	Teacher Retirement Fund	Education Budget Auditor — Appointed by Governor Superintendent of Public Instruction—elected
NEW YORK	Comptroller	Temporary treasury surpluses and Employee Retirement System funds	Comptroller	Temporary treasury surpluses and Employees Retirement System funds	Comptroller	Temporary treasury surpluses and Employees Retirement System funds	Comptroller—elected
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Head of Division of Treasury in Department of Taxation and Finance	Teacher Retirement System funds	Head of Division of Treasury in Department of Taxation and Finance	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: 1 bank officer—appointed by Board of Regents of University of State of New York, which is elected 2 administrative officers of school system—appointed by Commissioner of Education, who is appointed by Board of Regents, of University of State of New York. Comptroller—elected or 1 person appointed by him 3 members of Retirement System—appointed by other members Head of Division of Treasury appointed by Commissioner of Taxation and Finance who is appointed by Governor with Senate consent

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
NORTH CAROLINA	Governor and Treasurer with approval of Council of State	Temporary treasury surpluses	Governor and Treasurer	Temporary treasury surpluses	Governor and Treasurer	Temporary treasury surpluses	Council of State: Secretary of State—elected Auditor—elected Treasurer—elected Superintendent of Public Instruction—elected Commissioner of Agriculture—elected Commissioner of Labor—elected Commissioner of Insurance—elected
	Board of Trustees Teacher and State Employees Retirement System	Teacher and State Employees Retirement System funds	Board of Trustees Teacher and State Employees Retirement System	Teacher and State Employees Retirement System funds	Board of Trustees Teacher and State Employees Retirement System	Teacher and State Employees Retirement System funds	Board of Trustees Teacher and State Employees Retirement System: Treasurer—elected Superintendent of Public Instruction—elected 3 persons—appointed by Governor with Senate consent 1 state employee—appointed by Governor with Senate consent 1 teacher—appointed by Governor with Senate consent 1 employee of state highway and public works commission—appointed by Governor with Senate consent
NORTH DAKOTA	Temporary treasury surpluses are not invested						
	Unemployment Compensation Division	Old Age and Survivors Insurance System funds	Treasurer with approval of Unemployment Compensation Division	Old Age and Survivors Insurance System funds	Treasurer with approval of Unemployment Compensation Division	Old Age and Survivors Insurance System funds	Director of Unemployment Compensation Division — appointed by Workmen's Compensation Bureau (3 commissioners appointed by Governor) Treasurer—elected
	Board of Trustees Teacher Insurance and Retirement Fund with approval of Industrial Commission	Teacher Insurance and Retirement Fund	Board of Trustees Teacher Insurance and Retirement Fund with approval of Industrial Commission	Teacher Insurance and Retirement funds	Board of Trustees Teacher Insurance and Retirement Fund with approval of Industrial Commission	Teacher Insurance and Retirement funds	Board of Trustees Teacher Insurance and Retirement Fund: Treasurer—elected Superintendent of Public Instruction—elected 3 members of Retirement system—appointed by Governor Industrial Commission: Governor—elected Attorney General—elected Commissioner of Agriculture and Labor—elected
OHIO	Board of Deposit	Temporary treasury surpluses	Board of Deposit	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Board of Deposit: Treasurer—elected Auditor—elected Attorney General—elected
	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System: Auditor—elected Attorney General—elected Chairman Civil Service Commission — appointed by Governor with Senate consent 4 members of Retirement System—appointed by other members

	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Auditor—elected Attorney General—Elected Superintendent of Public Instruction—appointed by Governor 2 members of Retirement System—appointed by other members
	Board of Trustees School Employees Retirement System	School Employees Retirement System funds	Board of Trustees School Employees Retirement System	School Employees Retirement System funds	Board of Trustees School Employees Retirement System	School Employees Retirement System funds	Board of Trustees School Employees Retirement System: Auditor—elected Attorney General—elected 3 members of Retirement System—appointed by other members
	Board of Trustees State Highway Patrol Pension Fund	State Highway Patrol Pension Fund	Board of Trustees State Highway Patrol Pension Fund	State Highway Patrol Pension Fund	Board of Trustees State Highway Patrol Pension Fund	State Highway Patrol Pension Fund	Board of Trustees State Highway Patrol Pension Fund: Auditor—elected Superintendent of Insurance—appointed by Governor with Senate consent Superintendent of State Highway Patrol—appointed by Director of Highways, who is appointed by Governor 3 members of Retirement System—appointed by other members
OKLAHOMA	Temporary treasury surpluses are not invested						
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Public Instruction—elected Treasurer—elected Insurance Commissioner—elected 1 member of Tax Commission—appointed by Governor with Senate consent 5 members of Retirement System—appointed by Governor with Senate consent
OREGON	Bond Commission	Temporary treasury surpluses	Bond Commission	Temporary treasury surpluses	Bond Commission	Temporary treasury surpluses	Bond Commission: Governor—elected Treasurer—elected 1 member Industrial Accident Commission—appointed by Commission, which is appointed by Governor
	Bond Commission with approval of Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Bond Commission with approval of Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Bond Commission with approval of Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System: 2 persons—appointed by Governor 3 members of Retirement System—appointed by Governor
PENNSYLVANIA	Board of Finance and Revenue with Governor's approval	Temporary treasury surpluses	Board of Finance and Revenue with Governor's approval	Temporary treasury surpluses	Board of Finance and Revenue with Governor's approval	Temporary treasury surpluses	Board of Finance and Revenue: Treasurer—elected Auditor General—elected Attorney General—appointed by Governor with Senate consent Secretary of Revenue—appointed by Governor with Senate consent Secretary of State—appointed by Governor with Senate consent

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
PENNSYLVANIA —Continued	Board of Trustees State Employees Retirement System with Governor's approval	State Employees Retirement System funds	Board of Trustees State Employees Retirement System with Governor's approval	State Employees Retirement System funds	Board of Trustees State Employees Retirement System with Governor's approval	State Employees Retirement System funds	Board of Trustees State Employees Retirement System: Treasurer—elected Secretary of State—appointed by Governor with Senate consent 1 person—appointed by Governor with Senate consent 2 members of Retirement System—appointed by other members
	Board of Trustees Public School Employees Retirement System with Governor's approval	Public School Employees Retirement System funds	Board of Trustees Public School Employees Retirement System with Governor's approval	Public School Employees Retirement System funds	Board of Trustees Public School Employees Retirement System with Governor's approval	Public School Employees Retirement System funds	Board of Trustees Public School Employees Retirement System: Treasurer—elected Superintendent of Public Instruction—appointed by Governor with Senate consent 1 person—appointed by Governor Executive Secretary of State School Director's Assistant 3 members of Retirement Association—appointed by other members 1 person—appointed by above trustees
RHODE ISLAND	Treasurer with approval of Governor, Director of Business Regulation and Director of Administration	Temporary treasury surpluses	Treasurer with approval of Governor, Director of Business Regulation and Director of Administration	Temporary treasury surpluses	Treasurer with approval of Governor, Director of Business Regulation and Director of Administration	Temporary treasury surpluses	Treasurer—elected Director of Business Regulation—appointed by Governor with Senate consent Director of Administration—appointed by Governor with Senate consent
	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of State Employees Retirement System: Treasurer—elected Director of Business Regulation—appointed by Governor with Senate consent Director of Administration—appointed by Governor with Senate consent Personnel Director—appointed by Governor Director of Education—appointed by Governor 1 person—appointed by Governor 1 state employee—appointed by other state employees 1 teacher—appointed by other teachers
SOUTH CAROLINA	Treasurer with approval of Budget and Control Board	Temporary treasury surpluses and Retirement System funds	Treasurer with approval of Budget and Control Board	Temporary treasury surpluses and Retirement System funds	Treasurer with approval of Budget and Control Board	Temporary treasury surpluses and Retirement System funds	Budget and Control Board: Governor—elected Treasurer—elected Comptroller General—elected Chairman Senate Finance Committee—elected Chairman House Ways and Means Committee—elected

SOUTH DAKOTA	Board of Finance	Temporary treasury surpluses	Board of Finance	Temporary treasury surpluses	Treasurer	Temporary treasury surpluses	Board of Finance: Governor—elected Treasurer—elected Secretary of State—elected Commissioner of School and Public Lands—elected Auditor—elected Attorney General—elected Superintendent of Banks—appointed by Governor with Senate consent Secretary of Finance — appointed by Governor with Senate consent
	There are no retirement system funds to invest						
TENNESSEE	Funding Board	Temporary treasury surpluses	Funding Board	Temporary treasury surpluses	Funding Board	Temporary treasury surpluses	Funding Board: Governor—elected Commissioner of Finance and Taxation—appointed by Governor Secretary of State—appointed by Legislature Comptroller of treasury—appointed by Legislature Treasurer—appointed by Legislature
	Retirement Board	Retirement System funds	Retirement Board	Retirement System funds	Retirement Board	Retirement System funds	Retirement Board: Director of Budget—appointed by Governor Treasurer—appointed by Legislature 1 person—appointed by Governor 2 members of Retirement System—appointed by other members
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Commissioner of Education—appointed by Governor Treasurer—appointed by Legislature 3 persons—appointed by Governor 3 members of Retirement System—appointed by Governor from list submitted by Tennessee Education Association
TEXAS	Temporary treasury surpluses are not invested						
	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employees Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System	Employee Retirement System funds	Board of Trustees Employee Retirement System: Attorney General—elected Life Insurance Commissioner—appointed by Governor with Senate consent Chairman Board of Control—appointed by Governor with Senate consent Chairman Highway Commission—appointed by Governor with Senate consent 3 members of Retirement System—appointed by Governor with Senate consent from list submitted by members of System
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Life Insurance Commissioner—appointed by Governor with Senate consent Chairman Board of Control—appointed by Governor with Senate consent

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
TEXAS —Continued							1 person—appointed by Board of Education (Governor and elected Comptroller and Secretary of State, appointed by Governor with Senate consent) 3 members of Retirement System—appointed by Governor with Senate consent from list submitted by members of System
UTAH	Treasurer with approval of Board of Loan Commissioners	Temporary treasury surpluses	Treasurer with approval of Board of Loan Commissioners	Temporary treasury surpluses	Treasurer with approval of Board of Loan Commissioners	Temporary treasury surpluses	Treasurer—elected Board of Loan Commissioners: Governor—elected Secretary of State—elected Attorney General—elected
	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System	Public Employees Retirement System funds	Board of Trustees Public Employees Retirement System: Secretary of State—elected 3 persons—appointed by Governor 3 members of Retirement System—appointed by other members
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Finance Commission with Governor's approval	Teacher Retirement System funds	Finance Commission with Governor's approval	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Public Instruction—elected Attorney General—elected 2 persons—appointed by Governor 3 members of Retirement System—appointed by other members
	Finance Commission with Governor's approval	Firemens Pension Fund	Finance Commission with Governor's approval	Firemen's Pension Fund	Finance Commission with Governor's approval	Firemen's Pension Fund	Finance Commission—3 persons appointed by Governor with Senate consent
VERMONT	Treasurer with approval of Governor and Auditor of Accounts	Temporary treasury surpluses	Treasurer with approval of Governor and Auditor of Accounts	Temporary treasury surpluses	Treasurer with approval of Governor and Auditor of Accounts	Temporary treasury surpluses	Treasurer—elected Auditor of Accounts—elected
	Board of Trustees Employees Retirement System	Employees Retirement System funds	Board of Trustees Employees Retirement System	Employees Retirement System funds	Board of Trustees Employee Retirement System	Employees Retirement System funds	Board of Trustees Employees Retirement System: Governor—elected Treasurer—elected Auditor of Accounts—elected 2 members of Retirement System—appointed by other members
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Treasurer—elected Commissioner of Education—appointed by Board of Education, which is appointed by Governor 2 members of Retirement System—appointed by other members
VIRGINIA	Governor and Treasurer Board of Trustees Retirement System	Temporary treasury surpluses Retirement System funds	Governor and Treasurer Board of Trustees Retirement System (may delegate investment authority to Treasury Board)	Temporary treasury surpluses Retirement System funds	Governor and Treasurer Board of Trustees Retirement System (may delegate investment authority to Treasury Board)	Temporary treasury surpluses Retirement System funds	Treasurer—appointed by Governor with Legislative consent Board of Trustees Retirement System: 1 public employee—appointed by Governor with Legislative consent

							1 teacher—appointed by Governor with Legislative consent 3 persons—appointed by Governor with Legislative consent Treasury Board: Treasurer—appointed by Governor with Legislative consent Comptroller—appointed by Governor with Legislative consent Tax Commissioner—appointed by Governor with Legislative consent
WASHINGTON	Finance Commission	Temporary treasury surpluses	Finance Commission	Temporary treasury surpluses	Finance Commission	Temporary treasury surpluses	Finance Commission: Governor—elected Treasurer—elected Auditor—elected
	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System	State Employees Retirement System funds	Board of Trustees State Employees Retirement System: Insurance Commissioner—elected Attorney General—elected Treasurer—elected Auditor—elected 3 members of Retirement System—appointed by above trustees
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Finance Commission	Teacher Retirement System funds	Finance Commission	Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Superintendent of Public Instruction—elected Insurance Commissioner—elected 5 members of Retirement System—appointed by Board of Education (Superintendent of Public Instruction and 6 persons in education institutions appointed by Governor
	Board of Trustees Statewide City Employees Retirement System	Statewide City Employee Retirement System funds	Board of Trustees Statewide City Employees Retirement System	Statewide City Employees Retirement System funds	Board of Trustees Statewide City Employees Retirement System	Statewide City Employees Retirement System funds	Board of Trustees Statewide City Employees Retirement System: Insurance Commissioner—elected 3 elected city officials—appointed by Governor from list submitted by executive commission of Association of Washington Cities 3 city employees—appointed by Governor from list submitted by executive commission of Association of Washington Cities
	Treasurer	State Patrol Retirement System funds	Treasurer	State Patrol Retirement System funds	Treasurer	State Patrol Retirement System funds	Treasurer—elected
WEST VIRGINIA	Board of Public Works	Temporary treasury surpluses	Board of Public Works	Temporary treasury surpluses and	Treasurer	Temporary treasury surpluses and	Board of Public Works: Governor—elected Auditor—elected Treasurer—elected Secretary of State—elected Attorney General—elected Commissioner of Agriculture—elected Superintendent of Free Schools—elected
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds		Teacher Retirement System funds		Teacher Retirement System funds	Board of Trustees Teacher Retirement System: Governor—elected Superintendent of Free Schools—elected Director of Budget—appointed by Governor Insurance Commissioner—appointed by Governor with Senate consent 3 members of Retirement System—appointed by other members

TABLE 3—Continued

INVESTMENT OF TREASURY SURPLUSES AND OTHER FUNDS

State	DETERMINATION OF INVESTMENT AMOUNTS		DETERMINATION OF SECURITY PURCHASES (within statutory limitations)		NEGOTIATION OF INVESTMENTS		RELATION OF AUTHORITY TO GOVERNOR
	Officer and agency	For following funds	Officer and agency	For following funds	Officer and agency	For following funds	
WEST VIRGINIA—Continued	Board of Public Works	Judges Retirement System funds		Judges Retirement System funds and Department of Public Safety Retirement System funds		Judges Retirement System funds and Department of Public Safety Retirement System funds	
	Board of Trustees Department of Public Safety Retirement System	Department of Public Safety Retirement System funds					Board of Trustees Department of Public Safety Retirement System: Attorney General—elected Treasurer—elected Superintendent of Public Safety—appointed by Governor with Senate consent 2 members of Retirement System—appointed by other members
WISCONSIN....	Investment Board	Temporary treasury surpluses Retirement System funds	Investment Board	Temporary treasury surpluses and Retirement System funds	Investment Commission	Temporary treasury surpluses and Retirement System funds	Investment Board: Governor—elected (may vote only in case of tie) Director of Budget and Accounts—appointed by Governor with Senate consent 3 persons with investment experience—appointed by Governor with Senate consent 1 public employee—appointed by Governor with Senate consent 1 teacher—appointed by Governor with Senate consent Investment Commission: 3 persons appointed by Investment Board (subject to Wisconsin Civil Service laws) who perform Administrative functions for Investment Board
WYOMING.....	Treasurer with approval of Governor and Attorney General	Temporary treasury surpluses	Treasurer with approval of Governor and Attorney General	Temporary treasury surpluses	Treasurer with approval of Governor and Attorney General	Temporary treasury surpluses	Treasurer—elected Attorney General — appointed by Governor with Senate consent Board of Trustees State Employee Retirement Association: Auditor—elected Treasurer—elected 5 members of Retirement Association — appointed by other members Board of Trustees Teacher Retirement System: Board of Education: Superintendent of Public Instruction—elected 6 persons—appointed by Superintendent of Public Instruction with Governor's consent 2 members of Retirement System—appointed by other members
	Board of Trustees State Employees Retirement Association	State Employees Retirement Association funds	Treasurer	State Employees Retirement Association funds	Treasurer	State Employees Retirement Association funds	
	Board of Trustees Teacher Retirement System	Teacher Retirement System funds	Treasurer	Teacher Retirement System funds	Treasurer	Teacher Retirement System funds	

INVESTMENT OF STATE FUNDS

The Second Partial Report of the Senate Interim Committee on Governmental Reorganization reviewed the provisions and procedures for investing state funds and stated that "Although the Legislature has established a policy of investing surplus moneys, it has not yet consolidated investment authority in one agency so as to realize the maximum advantage from investment practices."

This report also stated that, in general, there are three steps involved in the investment of state moneys: (1) determination of the amount of money to be invested, (2) selection of the specific type of security to be purchased, and (3) actual negotiations for sale, purchase, trade or exchange of securities. The amount available for investment for some of the specific funds is determined by formula specified by statute. The amount to be invested from the Surplus Money Investment Fund is determined by agreement by the State Controller, State Treasurer, and Director of Finance.

The selection of the type of security to be purchased is governed to a large extent by the statutes relating to specific funds. The investing officer, however, has some discretion within the statutory limitations. In general, the State Treasurer is limited in type of securities he may purchase to obligations of various government jurisdictions. The types of securities to be purchased by the Director of Finance must be approved by the Board of Control. Investment transactions of the General Fund must also be approved by the State Treasurer.

The actual negotiations for investment transactions of the various state funds are performed by three state officials: The Treasury Deposit Officer of the State Treasurer's Office, the Investment Advisor for the Department of Finance, and the Comptroller—Actuary of the State Compensation Insurance Fund. The State Treasurer, through the Treasury Deposit Officer, invests surplus moneys in the funds under the jurisdiction of the Board of Control and the Governor—Treasurer—Controller. The Investment Advisor of the Department of Finance invests for the Department of Public Works, the State Employees' Retirement System, the Retirement Investment Board of the Teachers' Retirement System, and the Department of Veterans' Affairs. The Comptroller—Actuary of the State Compensation Insurance Fund invests the amount available from this fund as determined by the board of directors of and approved by the Department of Finance. The investment practices of other states are shown in Table 3.

The Annual Report of the State Controller for the 1951-52 fiscal year shows that the total investments held by sundry funds as of June 30, 1952, amounted to $1,287,769,823. This is big business.

The amount of money to be invested annually places the State of California alongside institutional lenders such as trust and insurance companies. The concensus of investing officers of such private companies is that there are four major aspects of such investment operations as follows:

(1) Diversification of funds among broad lanes of investment.
(2) Selection of investments within each class to minimize risk and obtain the greatest yield.
(3) Supervise the investment folio in such way as to minimize losses.
(4) Acquire and dispose of investments at proper time.

Centralization of investment functions would provide a basis for full application of these investment principles. Other advantages of centralizing the investment functions are as follows:

(1) It would eliminate duplication of offices and personnel which now exists.
(2) It would provide better over-all administration and tend to greater economy in operations.
(3) It would make it possible to provide, at a minimum of cost, an adequate investment staff with technical advice, complete market data, and financial services. To provide this type of service for presently authorized agencies would impose undue expense.
(4) A single agency adequately staffed could keep up-to-the-minute on market conditions and could take immediate advantage of profitable opportunities. Specialized knowledge combined with over-all coordination of state investments would permit selling before maturity if there is attractive profit; adjustment to extend maturities if money invested is not needed immediately; and exchanging securities to obtain improved quality or yield.
(5) The single office could time its purchases and sales so as to avoid the risk of unduly elevating or depressing prices.
(6) There is often an advantage in transferring a security from one fund to another when one fund is buying and the other is selling. High insurance costs for transporting securities from Sacramento to San Francisco and brokerage charges can be avoided. Consolidating investment negotiations would facilitate inter-fund sales or exchanges.
(7) It would make it possible to invest closer to the total amount of money available for investment.
(8) Pooling of moneys from a larger number of funds would make for greater stability of balance available for investment and thus allow purchase of long-term bonds, which usually bring greater yield.

Senate Bill 1535 introduced by the Members of the Senate Interim Committee on Governmental Organization provides for the consolidation of investment functions in a State Investment Board. The membership of this board consists of the State Treasurer, State Controller, Director of Finance, and one representative designated by each of the following: The State Teachers' Retirement System, the State Employees Retirement System, the State Compensation Insurance Fund, and the Unemployment Compensation Disability Fund.

The investment officer appointed by the board would be the executive officer and would have charge of all negotiations for investment transactions. The investment officer would also analyze the investment program of the State and submit recommendations to the board for policy determination.

Senate Bill 1535 also provides that any program of investment, reinvestment, purchase, sale, or exchange of any investments or securities for any state agency shall be submitted to such agency for approval or rejection. The investment officer would then proceed with the investment plan unless the state agency files a written objection.

CHAPTER 5

LEGISLATIVE SERVICES

A fundamental concept of the American system of government embodied in the Constitution of the State of California is the provision for three coordinate branches of government—executive, legislative, and judicial. Both the executive and the legislative branches have coordinated and related functions in providing the organization structure for the administration and control of state operations. The legislative function—the process of determining public policy and establishing the means for carrying it into effect—has been defined by the Council of State Governments (*Our State Legislatures*, rev. ed., 1948) as "* * * the determination of broad policies in a clear and decisive way: authorization of organization, personnel, powers and finances adequate to administer its policies: and review of the effectiveness of those policies and their administration."

The legislatures of the various states have developed staff agencies for various legislative services to assist them in the performance of their functions. The subject of legislative service was discussed in Chapter XI of the Second Partial Report of the Senate Interim Committee on Governmental Reorganization (1951). The committee, at that time, recommended that: "There should be established in California a Legislative Reference Bureau to provide research and fact finding services to the Legislature and to supplement existing services of the Legislative Counsel and the Legislative Auditor."

The need for centralization and better organization of the research services and facilities available to the Legislature continues to exist. Facilities for legislative research are now provided by a number of agencies. California statutes provide for five legislative service agencies as follows: (1) Legislative Counsel Bureau, (2) California Code Commission, (3) Commission on Uniform State Laws, (4) California Commission on Interstate Cooperation, and (5) Joint Legislative Budget Committee and Legislative Auditor.

All of these agencies provide some facilities for legislative research. Other research facilities are provided by the Laws and Legislative Reference Section of the State Library and the Bureau of Public Administration of the University of California.

The Committee on Government Organization believes that the increase in the work load of the Legislature and the comparatively short legislative sessions justify centralization and coordination of the research facilities which are now available to the Legislature. This chapter, therefore, presents a revision of the discussion on "Legislative Aids" in the Second Partial Report (1951) in order to summarize the services which are available and the needs that still exist.

With the exception of the provisions for statutory revisions and Commission on Uniform State Laws, the legislative services provided by the various states are shown in Table 4.

BILL DRAFTING AND STATUTORY REVISION

One of the first of the technical staff services to be provided for the legislatures in the various states is that of bill drafting and statutory revision. Some states provide that such services shall be provided by designated divisions of the Office of Attorney General. Other states combine bill drafting and legislative reference services.

Bill drafting services are provided in California by the Legislative Counsel Bureau established by Chapter 322, Statutes of 1913, Sections 10200-10246, Government Code. The Office of the Legislative Counsel also advises the Members of the Legislature as to the constitutionality or effect of proposed legislation. The Legislative Counsel is elected by the Legislature by concurrent resolution at the beginning of each regular session. The Legislative Counsel is also the Secretary of the California Code Commission and is the ex officio member of the California Commission on State Laws.

The services provided the California Legislature by the Legislative Counsel and his staff are more complete than similar services provided by the bill drafting agencies of most of the other states. These services are summarized in the 1950 *California Blue Book* as follows:

> "The Legislative Counsel is the legal advisor in matters of legislation not only to the Legislature as a whole, but also to each individual member. He is required by law to keep all requests made of him confidential until otherwise directed by the member making the request. This strict observance of the confidential relationship of attorney and client assures each legislator that his communications to the Legislative Counsel will not be revealed to any person without the legislator's consent: with this single exception, that, as provided by joint rule, whenever the Legislative Counsel gives an opinion concerning a pending measure, he must send a copy of such opinion to the legislator who introduced the measure.
>
> "During the February recess following the portion of the general session devoted to the introduction of bills, the office prepares for publication a *Legislative Digest* of all measures introduced, and also prepares tables identifying those sections of existing law which would be amended, repealed, or modified by these measures. A *Subject List* which indexes the contents of all bills is also published.
>
> "When a legislative bill has passed both houses and is sent to the Governor for approval, the office, upon request of the Governor, reports to him as to the legal scope and effect of the measure. A copy of the report is given the member who introduced the bill.
>
> "As soon as possible after the end of the bill-signing period, the Legislative Counsel publishes a *Summary Digest* of all statutes enacted and of all constitutional

TABLE 4

LEGISLATIVE SERVICES PROVIDED BY THE VARIOUS STATES: 1952

State	Legislative Council and Council Type Agencies	Legislative research	Bill drafting	Budget analysis
ALABAMA	Legislative Council, 12 members (1945) President of Senate Speaker of House 4 Senators 6 Representatives Director of Reference Service is ex officio Secretary of Legislative Council	Legislative Reference Service	Legislative Reference Service	
ARIZONA	Special Legislative Committee on State Operations, 6 members. 3 Senators 3 Representatives	Special Legislative Committee on State Operations Department of Library and Archives	Department of Library and Archives	
ARKANSAS	Legislative Council composed of 23 members: 7 Senators 13 Representatives Lieutenant Governor Speaker of House Legislator representing Governor	Legislative Council Arkansas History Commission—spot research problems	Legislative Council	Legislative Council inquiry into state's financial affairs
CALIFORNIA		Interim Committees Joint Legislative Budget Committee Law and Legislative Reference Section State Library, spot reference	Legislative Council	Joint Legislative Budget Committee
COLORADO		Legislative Reference Office, Department of Law	Legislative Reference Office, Department of Law	
CONNECTICUT	Legislative Council, 18 members (1937) Speaker of House President Protem of Senate Majority and Minority Leaders of House and Senate 4 Senators 8 Representatives	Legislative Council Legislative Reference Department State Library	Legislative Research Department Legislative Commission appointed by Legislature	
DELAWARE		Legislative Reference Bureau: 1 President protem of Senate 2 Speaker of House 3 Governor	Legislative Reference Bureau	
FLORIDA	Legislative Council, 18 members (1949) President of Senate Speaker of House of Representatives 8 Senators 8 Representatives	Legislative Reference Bureau	Statutory Revision and Bill Drafting Departments	
GEORGIA		State Library—spot research	Bill Drafting Unit—Attorney General's office	
IDAHO			Legislative Council	
ILLINOIS	Legislative Council, 22 members (1937) President of Senate Speaker of House 10 Senators 10 Representatives	Legislative Council Legislative Reference Bureau	Legislative Reference Bureau	Illinois Budgetary Commission: 1 Chairman of Appropriations Committee 2 2 Senators 3 3 Representatives 4 Governor

TABLE 4—Continued

LEGISLATIVE SERVICES PROVIDED BY THE VARIOUS STATES: 1952

State	Legislative Council and Council Type Agencies	Legislative research	Bill drafting	Budget analysis
INDIANA	Legislative Advisory Commission, 8 members: President of Senate Speaker of House 3 Senators 3 Representatives	Legislative Bureau		
IOWA		Spot Research by Legislative Reference Bureau—State Law Library	Legislative Reference Bureau—State Law Library	Budget and Financial Control Committee
KANSAS	Legislative Council, 27 members (1933) President of Senate Speaker of House 10 Senators 15 Representatives	Legislative Council State Library	Revisor of Statutes	Legislative Budget Committee
KENTUCKY	Legislative Research Commission, 7 members (1936) Governor President of Senate Speaker of House Majority and Minority Floor Leaders	Legislative Research Commission, Legislative and Law Library—spot research	Statute Revision Commission	
LOUISIANA		State Library—spot reference		
MAINE	Legislative Research Committee, 10 members (1939) 3 Senators 7 Representatives	Legislative Research Committee State Library—spot research	Legislative Research Committee	
MARYLAND	Legislative Council, 20 members (1939) President of Senate Chairmen Senate and House Finance Committees Chairmen Senate and House Judiciary Committees Minority Floor Leaders, Senate and House Speaker of House 6 Senators 6 Representatives	Legislative Council Department of Legislative Reference	Department of Legislative Reference	State Fiscal Research Bureau, Unit of Department of Legislative Reference
MASSACHUSETTS		Legislative Reference Division State Library, spot research	Office of Counsel to House and Counsel to Senate	House Ways and Means Committee
MICHIGAN		Legislative Service Bureau	Legislative Service Bureau	Committee on Audit and Appropriations
MINNESOTA	Legislative Research Committee: 18 members (1949) 9 Representatives 9 Senators	Legislative Research Committee State Law Library—spot research	Revisor of Statutes	Legislative Research Committee
MISSISSIPPI		State Library	Attorney General's office—Revisor of Statutes	
MISSOURI	Committee on Legislative Research, 20 members (1943) 10 members of Senate 10 members of House	Committee on Legislative Revision	Committee on Legislative Research	
MONTANA		Legislative Research Bureau of State Law Library		
NEBRASKA	Legislative Council, 43 members (1937), composed of all members of Legislature	Legislative Council	Legislative Council Revisor of Statutes	Legislative Council

TABLE 4—Continued

LEGISLATIVE SERVICES PROVIDED BY THE VARIOUS STATES: 1952

State	Legislative Council and Council Type Agencies	Legislative research	Bill drafting	Budget analysis
NEVADA	Legislative Counsel Bureau; 4 members (1945) 2 Senators 2 Representatives	Legislative Counsel Bureau	Legislative Counsel Bureau and Attorney General	Legislative Auditor (Counsel Bureau)
NEW HAMPSHIRE	Legislative Council, 48 members (1951) 5 citizens appointed by Governor 3 Senators 40 Representatives	Legislative Service State Library		House and Senate Appropriations Committees
NEW JERSEY		Division of State Library—Archives and History	Law Review and Bill Drafting Commission	
NEW MEXICO	Legislative Council, 9 members (1951) President of Senate Speaker of House 3 Senators 4 Representatives	Legislative Council Service State Library—spot research	Legislative Council Service	
NEW YORK		Reference section of State Library	Legislative Bill Drafting Commission	
NORTH CAROLINA			Division of Legislative Drafting and Codification Department of Justice	
NORTH DAKOTA	Legislative Research Committee, 11 members (1945) 5 Senators 6 Representatives	Legislative Research Committee	Legislative Research Committee	
OHIO	Program Commission 21 members (1943) Lieutenant Governor President Protem Senate Speaker of House 5 Administration Officers 3 members appointed by Governor 5 Senators 5 Representatives	Program Commission Legislative Reference Bureau Legislative Research Commission	Legislative Reference Bureau	Legislative Research Commission
OKLAHOMA	State Legislative Council 162 members (1939) All members of Legislature 44 Senators 118 Representatives	State Legislative Council Legislative Reference Division of State Library	Legislative Reference Division of State Library	Legislative Audit Committee (of the Legislative Council)
OREGON		State Library and Supreme Court Library Legislative Service and Reference Bureau University of Oregon—semi-official bureau, directed by heads of 5 university departments	Department of Justice: Statute Revisor	
PENNSYLVANIA	Joint State Government Commission, 26 members (1937) President Protem Senate Speaker of House 12 Senators 12 Representatives	Joint State Government Commission	Legislative Reference Bureau. Also departmental and private groups with Legislative sponsorship	

TABLE 4—Continued

LEGISLATIVE SERVICES PROVIDED BY THE VARIOUS STATES: 1952

State	Legislative Council and Council Type Agencies	Legislative research	Bill drafting	Budget analysis
RHODE ISLAND		Legislative Reference Bureau of State Library	Legislative Reference Bureau Section in charge of law revision—Secretary of State	
SOUTH CAROLINA	Legislative Council, 3 members (1949) President of Senate Speaker of House Code Commission	Legislative Council, Research Division	Legislative Council	
SOUTH DAKOTA	Legislative Research Council, 110 members (1951) (all members of legislature) 35 Senators 75 Representatives	Legislative Research Council	Revisor of Statutes	
TENNESSEE		Legislative Reference Bureau: Assistant Attorney General 2 members of State Planning Commission	Legislative Reference Bureau	
TEXAS	Legislative Council, 17 members (1949) President of Senate Speaker of House 5 Senators 10 Representatives	Legislative Council	Legislative Reference Division, State Library	Legislative Budget Board: A 10-man interim legislative committee
UTAH	Legislative Council, 13 members (1947) 3 public members appointed respectively by Governor, Speaker of House, President of Senate President of Senate Speaker of House 4 Senators 4 Representatives	Legislative Council	Legislative Council	
VERMONT		Legislative Reference Bureau	Legislative Reference Bureau	
VIRGINIA	Advisory Legislative Council, 9 members (1936) 4 Senators 5 Representatives	Division of Statutory Research and Drafting	Division of Statutory Research and Drafting	
WASHINGTON	State Legislative Council, 21 members President pro tem., Senate Speaker of House 9 Senators 10 Representatives	Legislative Council	Attorney General's office—Permanent Statute Law Committee	Legislative Council Budget Committee: 3 Senators 3 Assemblymen
WEST VIRGINIA	Commission on Interstate Cooperation and Joint Committee on Government and Finance	Joint Research program of Commission on Interstate Cooperation and Joint Committee on Government and Finance		
WISCONSIN	Joint Legislative Council, 15 members (1947) President pro tem., Senate Speaker of House 5 Senators 8 Representatives	Joint Legislative Council Legislative Reference Library	Joint Legislative Council Legislative Reference Library Revisor of Statutes	
WYOMING	Legislative Interim Committee, 12 members (1943) 6 Senators 6 Representatives	Legislative Interim Committee State Library, spot research		

amendments proposed. This publication is usually ready for distribution within two to four weeks after the close of bill-signing period, well before the date that most of the new statutes become effective. It serves as a guide to changes in the law until the statutes can be published in volume form.

''Meanwhile the office is also preparing the marginal notes and the indices and tables which make up the *Appendix* to the bound volume of the *Statutes*.

''The heaviest workload for the Legislative Counsel occurs immediately preceding, during, and following the legislative sessions; but there are also many calls upon him during the interim between sessions. Members of the Legislature and other state officers frequently request information concerning legislative matters that require drafting assistance. A large part of the work during this time is for interim legislative committees, assisting them in the conduct of their studies, and in drafting legislation recommended by them. Under certain circumstances, the Legislative Counsel may also assist sponsors of initiative measures in the drafting of their proposals.

''Other state officers avail themselves of the specialized services of the staff of the Legislative Counsel by contracting with him for technical assistance in drafting departmental rules and regulations, or in the compilation of the laws of this State administered by a department and, for convenience, published by it in pamphlet form. Another such service is the preparation and editing of the codes as published by the Documents Section of the State Division of Printing.

''By far the greatest task so undertaken is for the California Code Commission, currently engaged in codifying the laws of the State. The Legislative Counsel is ex officio secretary of the commission, which has directed that its staff work be done under his supervision.

''During the past several years frequent special sessions of the Legislature have been held. The work of the Legislative Counsel in connection with such sessions is, upon a smaller scale, the same as for the regular sessions.

''The Legislative Counsel also edits the *Ballot Pamphlet,* a publication issued by the Secretary of State prior to each general election and containing the text of each proposed constitutional amendment and initiative measure to be voted upon, as well as an impartial analysis prepared by the Legislative Counsel.

''He has the duty to advise the Legislature from time to time as to needed revision of the statutes, and to present to each session of the Legislature a statement calling attention to laws which have been repealed by implication or which have been declared unconstitutional by the courts but which have not been expressly repealed.''

CALIFORNIA CODE COMMISSION

The California Code Commission was created by Chapter 750, Statutes of 1929, Sections 10300-10351, Government Code. The commission is composed of nine members appointed by the Governor who serve without salary. The Legislative Counsel is the secretary of the commission. The principal function of the commission is the consolidation and codification of the statutory laws of the State.

As provided in Section 10331 of the Government Code, the work of revision of the laws includes:

(a) The codification, consolidation, compilation, or revision of all statutes in force.

(b) The express repeal of all statutes repealed by implication, held unconstitutional by the Supreme Court of the State, or which will be rendered obsolete by the proposed revision if adopted.

(c) Whenever necessary, the correction of errors in form or substance, including such restatement as will best serve clearly and correctly to express the existing provisions of law.

(d) The suggestion of such substantive changes in the existing law as may be deemed proper.

The California Code Commission has allocated the laws of the State to 25 separate codes. In making this codification, the commission has followed the policy set forth in the 1935 and subsequent reports as follows:

> ''The commission in its work of revision and codification has adopted a definite policy not to make substantive changes, but to confine its work to a compilation, consolidation, and clarification of the existing law. Such changes in wording as are made, are made to resolve ambiguities or to conform with administrative practice and legislative intent. The revision and codification will present the existing law in such form as to facilitate greatly the making of such substantive changes as are found to be necessary.''

As noted above, the work of drafting the codes is performed by members of the staff of the Legislative Counsel under the direction and supervision of the Legislative Counsel and the Code Commission. Preliminary drafts are circulated for comment prior to submission for adoption.

According to the 1952 Report of the California Code Commission, the primary work of codification will be completed at the close of the 1953 Regular Session of the Legislature. The 1950 Report stated that the commission was convinced of a need for substantive revision and that the work of substantive revision requires a commission different from the present Code Commission.

The recommendations of the 1952 report of the California Code Commission are as follows:

(1) The Code Commission be abolished, as its primary work of codification will be completed at the close of the 1953 Session of the Legislature.

(2) A Law Revision Commission be created to recommend substantive changes in the law.

(3) The Law Revision Commission consist of nine members appointed by the Governor, who should receive no compensation for their services other than their necessary travel expenses.

(4) The work of nonsubstantive revision, including the final survey of the existing laws, and the ''keeping of the codes in shape,'' be transferred to the Legislative Counsel.

(5) An adequate appropriation be made available to the new Law Revision Commission for the employment of a secretary and staff, and to the Legislative Counsel for the conduct of the work of nonsubstantive revision.

COMMISSION ON UNIFORM STATE LAWS

The California Commission on Uniform State Laws was created by Chapter 498, Statutes of 1927 (Sections 10400-10433, Government Code), and is composed of three members appointed by the Governor. The Legislative Counsel is a member ex officio.

The promotion of uniform legislation among the various States has been the principal objective of the National Conference of Commissioners of Uniform State Law which has held annual meetings since 1892. California has been represented at these annual conferences since 1899 but on an informal basis prior to 1927.

The national conference, since its organization, has drafted 94 acts, some of which have since been withdrawn. Fifty-five uniform acts and nine model acts have been offered to the States and accepted by some. According to the 1950 *California Blue Book,* California has adopted 27 of these acts. The earliest were the Warehouse Receipts Act (1909), the Bills of Lading Act (1915), and the Negotiable Instruments Act (1917). The most recent were the Uniform Divorce Recognition Act, the Uniform Interstate Arbitration of Death Taxes Act, and the Uniform Interstate Compromise of Death Taxes Act, all adopted in 1949.

CALIFORNIA COMMISSION ON INTERSTATE COOPERATION

In addition to the Commission on Uniform State Laws, the Legislature created the California Commission on Interstate Cooperation in 1939, Sections 8000-8011 of the Government Code, as further evidence of formal official interstate cooperation and assistance to the Legislature on problems where interstate cooperation is desirable. The commission works in close cooperation with the Council of State Governments.

The commission as presently constituted, consists of 15 members—five Senators, five Assemblymen, and five heads of administrative departments appointed by the Governor. The Legislature, in 1949, provided for one of the members of the Commission on Uniform State Laws to be an ex officio member when appointed by the Governor to serve in such capacity.

Section 8005 of the Government Code provides that the functions of the California Commission on Interstate Cooperation are to:

"(a) Carry forward the participation of this State as a member of the Council of State Governments both regionally and nationally.

"(b) Confer with offices of other states of the Federal Government.

"(c) Formulate proposals for cooperation between this State and other states, and with the Federal Government.

"(d) Organize and maintain governmental machinery for such purposes."

Section 8006 of the Government Code also provides that: "The commission may establish such committees and advisory boards as it deems advisable to conduct conferences and to formulate proposals concerning subjects of intergovernmental cooperation. Subject to the approval of the commission, the members of every committee and advisory board shall be appointed by the chairman of the commission." Nonmember state officials and private citizens may be selected to serve as members of any committee or advisory board of the commission, provided a member of the commission is also appointed to such committee or board.

JOINT LEGISLATIVE BUDGET COMMITTEE AND LEGISLATIVE AUDITOR

California was the first State to provide specialized staff facilities for the Legislature for continuous budget analysis. The Legislature adopted a Joint Rule in 1941 establishing a Legislative Budget Committee which was declared to be a continuing body. Subsequent Legislatures have included this provision in the Joint Rules. Approximately one-fourth of the states now have similar staff agencies.

Sections 9140-9143, inclusive, of the Government Code providing for the Joint Legislative Budget Committee and Legislative Auditor were added by Chapter 1667, Statutes of 1951. These sections are as follows:

> "9140. The Joint Legislative Budget Committee is hereby created. The committee shall ascertain facts and make recommendations to the Legislature and to the houses thereof concerning the State Budget, the revenues and expenditures of the State, the organization and functions of the State, its departments, subdivisions and agencies, and such other matters as may be provided for in the Joint Rules of the Senate and Assembly. The committee has a continuing existence and may meet, act and conduct its business at any place within this State, during the sessions of the Legislature or any recess thereof, and in the interim period between sessions.
>
> "9141. The committee shall consist of five Members of the Senate and five Members of the Assembly who shall be selected in the manner provided for in the Joint Rules of the Senate and Assembly. The committee shall elect its own chairman. Vacancies occurring in the membership of the committee between general sessions of the Legislature shall be filled in the manner provided for in the Joint Rules of the Senate and Assembly. A vacancy shall be deemed to exist as to any member of the committee whose term is expiring whenever such member is not re-elected at the general election.
>
> "9142. The committee is authorized to make rules governing its own proceedings and to create subcommittees from its membership and assign to such subcommittees any study, inquiry, investigation, or hearing which the committee itself has authority to undertake or hold. The provisions of Rule 36 of the Joint Rules of the Senate and Assembly relating to investigating committees shall apply to the committee and it shall have such powers, duties and responsibilities as the Joint Rules of the Senate and Assembly shall from time to time prescribe, and all the powers conferred upon committees by Section 37, Article IV, of the Constitution.
>
> "9143. The committee shall have authority to appoint a legislative auditor and such other clerical and technical employees as may appear necessary, pursuant

to the provisions of subsection (4) of subdivision (a) of Section 4, Article XXIV of the Constitution. The funds for the support of the committee shall be provided from the Contingent Funds of the Senate and the Assembly in the same manner that such funds are made available to other joint committees of the Legislature.''

Joint Rule 37 of the Senate and Assembly (1951) states that the duties of the Legislative Auditor shall be as follows:

''(1) To ascertain the facts and make recommendation to the Budget Committee and under their direction to the committees of the Legislature concerning:
  ''(a) State Budget.
  ''(b) Revenues and expenditures of the State.
  ''(c) The organization and functions of the State, its departments, subdivisions and agencies.

''(2) To assist the Senate Finance Committee and the Assembly Ways and Means Committee in consideration of the budget and all bills carrying express or implied appropriations and all legislation affecting state departments and their efficiency; to appear before any other legislative committee, and to assist any other legislative committees upon instruction by the Legislative Budget Committee.

''(3) To provide all legislative committees and Members of the Legislature with information obtained under the direction of the Legislative Budget Committee.

''(4) To maintain a record of all work performed by the Legislative Auditor under the direction of the Legislative Budget Committee and to keep and make available all documents, data, and reports submitted to him by any Senate, Assembly or joint committee. The committee may meet either during sessions of the Legislature, any recess thereof, or after final adjournment, and may meet or conduct business at any place within the State of California.''

The budget-making process is essentially executive in nature, and is so regarded by the California Constitution. Section 34 of Article IV of the Constitution provides for the Executive Budget as follows:

> ''Sec. 34. The Governor shall, at each regular session of the Legislature, submit to the Legislature, with an explanatory message, a budget containing a complete plan and itemized statement of all proposed expenditures of the State provided by existing law or recommended by him, and of all its institutions, departments, boards, bureaus, commissions, officers, employees, and other agencies, and of all estimated revenues, for the ensuing fiscal year, together with a comparison, as to each item or revenues and expenditures, with the actual revenues and expenditures for the last completed fiscal year and the actual and estimated expenditures for the existing fiscal year. If the proposed expenditures for the ensuing fiscal year shall exceed the estimated revenues therefor, the Governor shall recommend the sources from which the additional revenue shall be provided.
>
> ''The Governor shall submit the budget within the first 30 days of each general session, and prior to its recess, and within the first three days of each budget session.''

The Legislative Auditor and his staff participate in the budget making process to a limited extent in that they attend the preliminary budget hearings by invitation of the Division of Budgets and Accounts of the Department of Finance. The function of the Legislative Auditor, however, is essentially that of analysis and review. The *Analysis of the Budget Bill* is an annual report of the Legislative Auditor to the Legislative Budget Committee. The recommendations included in this report are considered by the Ways and Means Committee of the Assembly and Senate Finance Committee in their analysis of the Executive Budget.

The need for a separate budget analysis staff for the legislative branch of government has been recognized by authorities in the field of public administration. Professor Pfiffner in his text, *Public Administration,* rev. ed., 1946, states that:

> ''The need for some sort of legislative staff agency has been felt in the states. The occasion for this demand has arisen out of a clash between the Governor and the legislature in those instances where a large majority in the latter are of an opposite political faith from the former. It would seem that under our American system of complete separation of the executive and the legislative branches, where a rupture between the two may create a lack of confidence in the other's recommendations, the citizenry of the state might fare better if the legislature had its own professional investigators. Anyone who has observed the heated animosity and spirit of vengeance and recrimination which may exist between a governor and a legislature, or between a mayor and a city council, will realize that one will not trust the experts of the other. Furthermore, the budget staff of the executive might feel itself restrained in its relationship with the legislature, especially when its association with the executive is quite intimate. Under these conditions it would seem quite appropriate that the legislature possess its own staff of fiscal experts in whom it has confidence.''

The relationship of this legislative staff service to the executive function of budget preparation is discussed in the report of the Committee on Organization of Legislative Services of the Council of State Governments to the 1952 annual meeting of the Legislative Service Conference as follows:

> ''The movement toward legislative services of a budgetary, fiscal, and administrative review and analysis nature during the past 10 or 12 years has not been regarded in most of the states where agencies of this type have been established as a movement to curtail executive budget responsibility or authority. Rather its objective has been to provide the legislature with sufficient information, independently arrived at, so that the law-making and appropriating body may be enabled to carry out its review and appropriating functions more efficiently and responsibly.''

The staff services of the Legislative Budget Committee are also helpful to the Legislature in its analysis and determination of the administrative structure of State Government. As stated by Professor Leonard D. White, "Legislative Responsibility for the Public Service," *State Government,* November, 1945:

> "* * * The function of a legislative body in an American state toward its administrative system has changed as the character of our economy has evolved; and it is important to seize upon the essential feature of the change. It is this. The details of the business of government have escaped the competence of legislative committees and chairmen; the possibility of deciding policy by settling details, once perhaps feasible, has disappeared and in the future, legislatures perforce must deal with administration on the basis of principle and generality if they are to deal with it effectively and in the public interest. * * *
>
> "The control of administration which theory and practice assign to representative bodies is designed to protect the general interests of the state by maintaining a competent and responsible public service. Here again the legislature will gain if it does not try to do too much—to control in detail. A legislative body is not well equipped to supervise administration in detail, even though it were continuously in session. It must concentrate where it can be effective. This means that it must so organize the administrative system that by giving attention to a limited number of key points it can reach the whole structure. * * *"

LEGISLATIVE RESEARCH

The above discussion shows that the existing legislative staff agencies now provide a considerable amount of facilities for legislative research. The research facilities of most of the statutory agencies, however, are related to the technical functions of bill drafting and code revision.

The Legislature is constantly confronted with new problems requiring extensive research before proposed legislation can reach the bill-drafting stage. Most of this research is now performed by interim investigating committees provided for by Joint Rule 36 of the Legislature. Such investigating committees are used far more extensively in California than in other states.

Each investigating committee determines its own needs and employs or contracts for such assistance as is required subject only to the limitations of the amounts appropriated for committee use and the provisions of Joint Rule 36. Joint Rule 37 provides that the investigating committees may contract with the Legislative Budget Committee for such services as follows:

> "The Legislative Budget Committee may render services to any investigating committee of the Legislature pursuant to contract between the Legislative Budget Committee and the committee, for which the services are to be performed. The contract may provide for payment to the Legislative Budget Committee of the cost of such services from the funds appropriated to the contracting investigating committee. All legislative investigating committees are authorized to enter such contracts with the Legislative Budget Committee. Money received by the Legislative Budget Committee pursuant to any such agreement shall be in augmentation of the current appropriation for the support of the Legislative Budget Committee."

The investigating committees, however, are under no compulsion to contract for such services with the Legislative Budget Committee and such intercommittee contracts are infrequently used although some committees may enter into such contracts for some part of their investigating activities. Most of the investigating committees prefer to make their own arrangements and conduct their own research. The result of this procedure is that the legislative research program of the Legislature is extremely decentralized and uncoordinated.

In addition to the authorization for contractual services, the Legislative Auditor is also authorized by Joint Rule 37 to provide research services upon request to the Members of the Legislature and to the legislative committees. The history of this provision of the Joint Rules suggests that this authorization was added because of the lack of other centralized facilities for legislative research.

Since this provision was added to the Joint Rules, the Legislative Auditor has received and complied with a large number of requests for research services of various types from both individual members and committees. This service is growing and accounts for a large percentage of the activities of the members of the Legislative Auditor's staff.

When the Legislative Budget Committee was first created, the primary activities of the staff members were those of budget analysis and review. The additional duties of providing research services on other problems of concern to the Legislature has been recognized in the selection of the personnel of the staff of the Legislative Auditor. Staff members are selected on the basis of adequate training and experience in public administration to enable them to perform legislative research services as well as budget analysis and review activities. The work of budget analysis and review usually comes at peak periods during the year. The provision for legislative research thus provides for a balanced program of staff activity.

The organizational structure of the office of the Legislative Auditor, however, is still based primarily on the needs for budget analysis and review. Provision for a Director or Associate Director of Research and other professional services might well strengthen the organizational structure for the purposes of direction and supervision of the research activities.

LEGISLATIVE COUNCILS

The Council of State Governments Committee on Organization of Legislative Services reports that: "The most significant advance in the legislative service field during the past 20 years has been the initiation and expansion of the legislative council idea." Table 2 shows that 31 states now have a legislative council or similar staff agency.

The legislative council was proposed initially in the Model State Constitution drafted by the Committee on State Governments of the National Municipal League in

1921. Sections 317-320 of the Model State Constitution provide for the legislative council as follows:

> "Section 317. *Legislative Council.* There shall be a legislative council consisting of not less than 7 nor more than 15 members, chosen by and from the legislature. Members of the legislative council shall be chosen by the legislature at its first session after the adoption of this constitution and at each subsequent session following a regular election. Members of the legislative council shall be elected in such manner as the legislature shall direct, and when elected shall continue in office until their successors are chosen and have qualified. The legislature, by a majority vote of all the members, may dissolve the legislative council at any time and proceed to the election of a successor thereto.
>
> "Section 318. *Organization of Legislative Council.* The legislative council shall meet as often as may be necessary to perform its duties. It shall choose one of its members as chairman, and shall appoint a director of research; it shall adopt its own rules of procedure, except as such rules may be established by law. The secretary of the legislature shall serve ex officio as secretary of the council.
>
> "Section 319. *Duties of the Legislative Council.* It shall be the duty of the legislative council to collect information concerning the government and general welfare of the state and to report thereon to the legislature. Measures for proposed legislation may be submitted to it at any time, and shall be considered and reported to the legislature with its recommendations thereon. The legislative council may also recommend such legislation, in the form of bills or otherwise, as in its opinion the welfare of the state may require. Other powers and duties may be assigned to the legislative council by law.
>
> "Section 320. *Compensation of Members of the Legislative Council.* Members of the legislative council shall receive such compensation, additional to their compensation as members of the legislature, as may be provided by law."

The first legislative council was organized by the Kansas Legislature in 1933. As described in the report of the Committee on Organization of Legislation Services of the Council of State Governments, legislative councils, essentially, are permanent joint legislative committees which meet periodically between sessions and consider problems expected to confront the next session of the legislature.

Some states include all members of the legislature in the membership of the legislative council. The average membership, however, is approximately 18.

In some states, the staff of the legislative council or council type agency is organized to provide all types of legislative services including bill drafting and budget analysis. The principal functions of most councils, however are to provide: (1) Assistance on policy problems, and (2) continuing review of governmental programs. Detailed suggestions as to how these functions may be performed are presented by the Committee on Organization of Legislative Services of the Council of State Governments as follows:

ASSISTANCE ON POLICY PROBLEMS

"*I. What Is It?*

"Broadly speaking, almost all legislative activity is concerned with policy making. To differentiate this function from others, however, assistance on policy problems may be regarded as that service which gives the Legislature organized research data, so evaluated and presented as to be a significant aid in facilitating decisions concerning the more important state problems which present themselves for legislative consideration and solution.

"*II. What Can It Do?*

"Providing the Legislature with assistance on policy problems may include four major elements: (1) determining what problem areas are to be studied and investigated; (2) presenting in organized manner the facts useful in deciding a particular question; (3) delineating the major policy questions in a given problem; and (4) developing suggestions or recommendations for solution of the problem. The accomplishment of these objectives requires staff, capable and properly trained. However, it requires, also, close and effective participation by the Legislature or its representatives in order that the process may proceed on the basis of political wisdom and in order that the results may be acceptable as a basis for discussion and action by the Legislature. Essential to the success of efforts to provide this form of assistance, therefore, is a close copartnership between a legislative research committee or council and its staff.

"Facts and their interpretation have been and must continue to be the rational basis for policy decisions. The mere assembly of raw facts without analysis or interpretation is not a process requiring legislative participation. Study of major problems implies, however—if the results are to be of real value to the Legislature—an appropriate amount of interpretation, supplementation, evaluation, and application of the facts. Research, in this sense, makes the attainment of objectivity exceedingly difficult. Complete objectivity is, of course, an unobtainable goal, but it is one toward which the agency should strive.

"The Legislature's job of policy making requires more than facts; related policy questions also must be considered and a particular policy or policies must be selected. The research committee aided by its staff may assist the Legislature by making recommendations to it—either in the form of a specific recommendation, or as alternative courses of action. The agency, on the other hand, may merely delineate the major policy questions, indicating some of the possible answers and perhaps some of the considerations involved. In presenting the issues involved in a given problem the agency defines what it considers relevant and what it regards as irrelevant. This, too, is a real service but also a heavy responsibility.

"Assistance on policy problems may be indicated by three types of degrees of service. A given agency may supply service of only one kind or it may supply all three: acting as secretariat; gathering of information; and research.

"1. Acting as Secretariat. A legislative agency could perform this service by arranging meetings or hearings for discussion of current state problems. The agency would see that people having something to say on the subject would attend. It would also provide for keeping minutes of the meetings. Public hearings might be held. Meetings could be open to the public, and general public understanding and interest would be obtained through wide publicity. Essentially, this method of operation permits an organized opportunity during the interim for the legislators to discuss selected governmental problems with their colleagues and interested citizens.

"2. Gathering of Information. A legislative agency could assist the Legislature on policy questions by collecting immediately available information on particular subjects. This could take the form of oral testimony or written memoranda. The agency staff could act also as the clearing house for gathering information from operating agencies. Analysis and evaluation of the data would be limited.

"3. Research. A legislative research committee or council could serve the Legislature by thorough and complete research. This research could include both secondary sources (such as public and private reports, text books, and periodicals), and primary sources (including personal interviews, questionnaires, and the like). Analysis of the data and placing the information in perspective would be an essential part of this task.

"A number of factors may influence the choice among these approaches in individual states. The amount of money the State wishes to put into this legislative service will be important, for the more intensive the research, the less extensive the converage. Therefore, it is usually necessary to determine whether to treat a large number of subjects on the basis of materials readily at hand, or to undertake the thorough treatment of a smaller number of subjects. The question may well be: 'How deeply do you want to dig on policy problems?' However, the availability or nonavailability of good, objective studies on a wide range of the State's problems may influence the choice.

"*III. How Can It Be Done?*

"The organization needed to perform the legislative service for each of the three levels differs somewhat. Therefore, they will be discussed separately.

"1. Act as Secretariat. Service in this capacity would involve: arranging meetings, notifying the people who should attend, arranging for press and radio coverage of the meetings, and helping in organizing the discussion so that problems involved are covered. An experienced research and technical staff would not be required. A small staff which could work well with people, possess good general understanding of the organization and operation of the state government, and know the sources of information, would be sufficient for this type of operation.

"2. Gathering of Information. Service of this nature requires a staff head acquainted with the operation of the state government, and familiar with sources of information, and assisted by a staff with the capacity to search the indices accurately, to get an adequate general understanding of a subject quickly, and to write well with ease. Some research personnel would be desirable, but probably they should be generalists rather than specialists in particular problems of government.

"3. Research. When intensive research is the function, or one of the functions, of the legislative research committee or council, the emphasis in selecting staff must be upon those who are trained and qualified to carry on work of this nature. Here again, however, it is desirable to have on the permanent staff a nucleus of generalists who are trained in the social sciences and can be relied upon to carry on workmanlike research and to write up in readable fashion the results of their researches. Training should be in such fields as political science, economics, law, sociology, etc. The staff head should know the general literature on questions of state concern, the people and the institutions in the state working on problems akin to those his staff may be called on to study, and he should know how to supervise research. There may be opportunities for expert knowledge in particular fields to be utilized by the legislative research committee or council, and a variety of local factors will bear on whether experts of this type should be part of the permanent staff. Ordinarily, experts must be compensated at higher rates than generalists, and it may be questioned whether those of achieved expert standing in a particular field would be willing or able to turn their talents to other researches when studies in their own particular fields were not scheduled. Certain areas—such as public finance and taxation, or administrative organization—are sufficiently broad, however, to have a bearing on many types of studies which the research committee or council might undertake, and experts in these fields might well be added to the nucleus of generalists, the agency's budget permitting. Most legislative agencies of a general research nature will find it more economical and, in the long run, more efficient to obtain other types of expert research assistance on a temporary or contract or some similar basis.

"As important as the nature and qualifications of the staff is the matter of relationships between the staff and the legislators who compose the research committee or council. It is the latter who must bear responsibility for the agency's accomplishments—and for its failures, for the selection of topics and problems for study, for the adequacy of the fact-finding and analysis done on particular subjects, and for the wisdom and desirability of specific solutions which may be selected for recommendation.

CONTINUING REVIEW OF GOVERNMENTAL PROGRAMS

"*I. What Is It?*

"Program review by a legislative service agency is closely related to services which provide assistance on policy problems facing the legislature and to those concerned with budgetary, fiscal, and administrative review and analysis. Primarily it involves continuing examination by a legislative service agency of the operation of the laws and programs of the state government in all the major categories such as agriculture, education, health, highways, and welfare. Its functions also include, but are not confined to, investigating the trouble spots that develop in the administration of the state's programs for the purpose of developing suggested solutions.

"II. What Can It Do?

"Program review of this nature is a development of the past decade; and, as it has actually occurred in the few states which employ it, it is an offshoot of the legislative council movement. It is still so new, and the instances in which it is being employed (notably in Oklahoma and, to some extent, in Kansas) are so limited that we can do little more at present than to speculate as to the import and probable future consequences of this development. From one point of view—the power of the legislative council to initiate studies or investigations in any area where legislative consideration is deemed desirable—program review represents merely an intensification and regularization of a power which most councils have had since their establishment. From another point of view—the concept of a council as primarily the research arm of the legislature, directing intensive or relatively intensive studies in a limited number of problem areas during a given period—program review represents a significant departure from the conventional pattern. It is quite possible that the program review function in the years ahead may come to resemble the functions carried on under budgetary, fiscal, and administrative review and analysis.

"A legislative service agency charged with responsibility for continuing program review can provide a forum in which program administrators can explain to representatives of the legislature their operating problems and their views with reference to potential state problems in the subject areas with which they are concerned. Such an agency could act, also, as the legislative listening post for complaints by citizens and citizen groups about the administration of, or policies underlying, governmental programs. An agency of this nature might act as a clearinghouse for the exchange of information on major state programs and in the role of critic engaged in systematic and periodic review of these programs.

"A major danger constantly confronting any legislative agency working in this area is the tendency to become involved in direct and detailed supervision of the managerial aspects of government. Involvement of that type can materially diminish executive responsibility for over-all administration of the state government and at the same time stifle administrative initiative within the departments and agencies.

"At the minimum, the agency may be expected to have canvassed a portion of public sentiment on the various problems and suggested solutions. At a maximum, the agency may be expected to have prepared detailed reports on the background and considerations surrounding their recommendations.

"In view of the broad range of coverage of such an agency, it may reasonably be expected that it would develop an extensive program of recommended action. Some recommendations could be implemented by administrative or executive action alone; some would involve minor legislative changes with reference to administration; others could deal with basic state policies, their financial support and their administration. In actual fact, the reports of the Oklahoma Legislative Council have been of just this nature, their comments and recommendations covering virtually the gamut of state programs and activities.

"III. How Can It Be Done?

"A service agency engaged in program review should be composed entirely of legislators and assisted by a staff. A major share of the agency's work will consist of hearings, open meetings, institutional visitations, and field investigations, all of which require direct participation by the legislators. To carry on such activities in the wide range of fields covered by the state government, it would be desirable for the legislative membership of the agency to be divided into subcommittees corresponding to the major fields of state operations and interests—agriculture, education, health, and the like. Perhaps a relatively large number of legislators should be included on the agency's subcommittees in order that they may be properly reflective of legislative points of view. In this connection, it would probably prove desirable also for the chairmen and ranking minority members of standing committees in both houses to be included among the members of the agency's subcommittees concerned with related subject matter.

"The staff requirements for legislative program review will vary according to the agency's mission. At a minimum level, there will be continuing need for secretarial assistance and staff to assist in organizing and holding an extensive schedule of meetings, hearings, etc. The staff head should have a good understanding of the organization and operation of the state government, should have organizational and managerial skill, and should be able to enlist the cooperation and command the respect of administrative officials. If the agency staff, in addition, is called on to prepare background memoranda and meeting agendas to expedite the work of the subcommittees, some additional research and editorial assistance will be necessary. And if the agency formulates specific recommendations for action, the staff should include or have effective access to persons able to do sound legal research and bill drafting."

The above quotations from publications of the Council of State Governments illustrate what specialists in this field believe to be what a legislative council could do in providing assistance on policy problems and continuing review of governmental programs. The Annual Report of the Illinois Legislative Council for 1951-1952 illustrates what this type of legislative service agency actually does. This report states in part that:

"The legislative council, which is composed of 10 Senators, 10 Representatives, and the presiding officers of the two houses, serves as a continuing research agency for the legislature. Between sessions, research activities are concentrated on the study of relatively broad problems formally proposed by legislators and the publication of factual reports to aid in their solution. During the session the emphasis is on supplying legislators on individual request with personal memoranda providing them with facts and figures or arguments and alternatives, on issues that have come to their attention."

The legislative council type of staff agency can provide research services for other legislative committees as well as providing research facilities for the studies initiated by the council. The Pennsylvania Joint State Government Commission, for example, provides research services for committees created by (1) statutes, (2) concurrent resolutions, (3) senate resolutions, (4) house resolutions, and (5) subcommittees of the Joint State Government Commission.

The Pennsylvania Commission is authorized to employ a director and such professional, technical, clerical, and other assistance as may be necessary. The 1951-1953 General Report of the Joint State Government Commission shows that the staff consists of 3 administrative and 26 technical personnel. The administrative staff consists of the following:

Counsel and Director
Associate Director in Charge of Research and Statutes
Administrative Assistant

The technical staff is organized in six sections as follows:

Accountancy (1)
Economics (4)
Welfare (2)
Records and Publications (3)
Legal (1)
Mathematics and Statistics (9)
Natural Sciences and Engineering (6)

Although the Pennsylvania Joint State Committee is composed of 26 members of the General Assembly, the commission is authorized to designate any member of the General Assembly to such committees as it shall create, for the purpose of making investigations and studies, and to designate persons, other than members of the General Assembly, to act in advisory capacities. The 1947-1949 General Report lists 22 subcommittees of the commission. Each of these subcommittees is composed of equal numbers of members of the Senate and House.

LEGISLATIVE RESEARCH COMMITTEE

The above discussion indicates that further development of legislative research services and facilities in California could be based on the legislative research facilities now provided by the Legislative Auditor and his staff or such services could be established by the creation of a council type of agency.

A Joint Legislative Research Committee composed of every member of the Legislature with an executive committee consisting of the members of the Rules Committees of both Houses could function as a council-type agency for California. The creation of this type of agency, to some extent, would formalize the procedure that now governs the operation of the investigating committees of each branch of the Legislature. The principal difference between this proposal and the existing practice would be the centralization and enlargement of the scope of the facilities for legislative research.

The Commonwealth Club of California has recommended an expansion of legislative research services. This recommendation was included in the report ''How Should Legislative Investigating Committees Operate,'' *The Commonwealth,* Part 2, Volume XXVII, No. 27, July 2, 1951. This report states in part that:

> ''Because of the continuity of its existence, the Legislative Budget Committee and its staff have been able to give advance study to the budget proposals of the various administrators, with the result that when the budget itself has been presented to the Legislature for action, the committee has been fully informed concerning it. This advance study has cut down the amount of time required of the administrators in explaining their budget requests to the Legislature. The committee staff maintains permanent files on budget matters, and is always in a position to furnish up-to-date information on such matters to individual legislators upon request.
>
> ''Observers of the legislative process who are both practiced and objective in their perspective, assert that the expansion of this technique into new fields would be one of the most constructive policies that could be advocated by the leaders in the Legislature.
>
> ''The development of a staff of experienced research assistants, planners of well-rounded hearings, and persons skilled in assembling data into reports that are both concise and convincing would be an achievement of almost unparalleled significance.
>
> ''Any provision for such a staff should be fitted into the existing committee structure so as to make it available to each committee when needed. The technique most adaptable to existing legislative procedure would probably be to have such a permanent staff attached to the rules committee or legislative process committee of each house, subject to assignment to the various investigating committees as needed.''

APPENDIX

FISCAL MANAGEMENT PRACTICES IN THE FORTY-EIGHT STATES

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The Bureau of Public Administration of the University of California has assisted the Senate Interim Committee on Governmental Organization by compiling information relating to the fiscal management practices of each state. This information in summary form is shown in Tables A-1 and A-2.

The dual system of accounting maintained by the two California state agencies, Office of Controller and Department of Finance presents a number of problems that require further study and analysis. Data showing the officials responsible for the determination of the accounting system, pre-audit, and internal audit procedures in the various states are shown in Table A-3.

The tables showing the post-audit and investment practices of the various states included in Chapter 4 of this report were also prepared by Miss Roth and Mr. Uhr as a part of the study of fiscal management practices in the 48 states.

TABLE A-1

METHODS OF SELECTING OFFICIALS PERFORMING PRE-AUDIT

State	1952				1938[a]			
	Elected	Appointed by Governor	Appointed by Legislature	Other	Elected	Appointed by Governor	Appointed by Legislature	Other
Alabama				x[1*]		x		
Arizona	x				x			
Arkansas		x			x	x		
California	x				x			
Colorado		x			x			
Connecticut	x		x		x		x	
Delaware	x[4]	x[4]			x			
Florida	x				x			
Georgia			x		x			
Idaho	x				x			
Illinois	x	x[5]			x			
Indiana	x				x			
Iowa		x[5]				x[5]		
Kansas	x				x			
Kentucky				x[9]				x[illegible]
Louisana				[10]	x			
Maine				x[11]				x[11]
Maryland	x	x			x			
Massachusetts		x[12]				x[12]		
Michigan		x[5]			x			
Minnesota	x					x[5]		
Mississippi	x				x			
Missouri		x[5]			x			
Montana	x	x[5]			x			
Nebraska	x	x[5]			x	x[5]		
Nevada	x	x			x[14]	x[14]		
New Hampshire				x[17]		x[16]		
New Jersey		x[5]					x	
New Mexico	x				x			
New York	x				x			
North Carolina	x				x			
North Dakota	x				x			
Ohio	x	x[5]			x	x[5]		
Oklahoma		x			x			
Oregon	x	x			x			
Pennsylvania	x				x			
Rhode Island				x[18]		x		
South Carolina	x				x			
South Dakota	x		x		x			
Tennessee		x						x[23]
Texas	x				x			
Utah		x[5]			x			
Vermont	x				x			
Virginia		x[5]				x[5]		
Washington	x	x[5]			x			
West Virginia	x	x			x	x		
Wisconsin		x[5]			x			
Wyoming	x				x			
Totals	29	22	3		37	12	2	

The category "Other" on this table is broken down as follows:

On the "Methods of Selecting Officials Performing Pre-Audit," 1952, there were 5 instances of officials appointed by appointees of the Governor; there were 10 instances of officials elected and officials appointed by the Governor; there were 2 instances of officials elected and officials appointed by the Legislature; and in 1 case pre-audit not performed by a central agency.

For 1938 there were 3 instances of officials appointed by appointees of the Governor; there were 5 instances of officials elected and officials appointed by the Governor; and 1 instance, officials elected and officials appointed by the Legislature.

SOURCE: (a) Based on "Tabular Analysis of State Fiscal Offices," the National Association of State Auditors, Comptrollers and Treasurers (Chicago, 1938) and state statutes affecting auditing functions. See table A-2 for footnotes.

TABLE A-2

METHODS OF SELECTING OFFICIALS PERFORMING POST-AUDIT

State	1952				1938[a]			
	Elected	Appointed by Governor	Appointed by Legislature	Other	Elected	Appointed by Governor	Appointed by Legislature	Other
Alabama	x		x[2]		x	x		
Arizona			x[3]		x			
Arkansas		x				x		
California		x				x		
Colorado	x				x			
Connecticut			x				x	
Delaware	x[4]	x[4]			x			
Florida		x				x		
Georgia			x			x[5]		
Idaho	x[7]	x[7]				x[6]		
Illinois	x				x			
Indiana		x				x		
Iowa	x				x			
Kansas		x[5]						x[8]
Kentucky	x							x[9]
Louisana		x				x		
Maine			x				x	x[11]
Maryland		x				x		
Massachusetts	x				x			
Michigan	x							[13]
Minnesota		x[5]				x[5]		
Mississippi	x				x			
Missouri	x				x			
Montana	x	x[5]				x[5]		
Nebraska	x	x[5]			x			
Nevada			x[15]			x		
New Hampshire				x[17]		x[16]		
New Jersey			x				x	
New Mexico		x				x		
New York	x				x			
North Carolina	x	x			x			
North Dakota	x	x[5]			x			
Ohio	x				x			
Oklahoma	x				x			
Oregon	x				x			
Pennsylvania	x				x			
Rhode Island				x[20]				[19]
South Carolina				x[22]				x[21]
South Dakota			x		x			
Tennessee			x				x	
Texas			x[24]			x[5]		
Utah	x				x			
Vermont	x			x[25]	x			
Virginia			x				x	
Washington	x				x			x[26]
West Virginia	x	x[5]				x[5]		
Wisconsin		x[5]				x[5]		
Wyoming		x[5]				x[5]		
Totals	24	18	11		21	18	5	

The category "Other" on this table is broken down as follows:

On the "Methods of Selecting Officials Performing Post-Audit," 1952, there was 1 instance of officials appointed by appointees of the Governor; there were 7 instances, officials elected and officials appointed by the Governor; 1 instance, officials elected and officials appointed by the Legislature; 1 instance, officials appointed by a board (Governor, two elected officials and two legislators); 1 instance, officials elected and firm of auditors appointed by a board (Governor and four legislators); and in 1 case a firm of public accountants appointed by finance committee of House of Representatives.

For 1938 there were 2 instances of officials appointed by appointees of the Governor; 1 instance of officials elected and officials appointed by the Governor; 1 instance, officials elected and officials appointed by appointees of Governor; 1 instance, officials appointed by Legislature and officials appointed by appointees of the Governor; 1 instance, officials appointed by commission (Governor and two legislators); and in 2 instances post-audit not performed by a central agency.

SOURCE: (a) Based on "Tabular Analysis of State Fiscal Offices," the National Association of State Auditors, Comptrollers and Treasurers (Chicago, 1938) and state statutes affecting auditing functions.

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[1] Appointed by Director of Finance with Governor's consent from Civil Service Register. Director of Finance is appointed by Governor.

[2] Appointed by Legislative Commission on Public Accounts with Senate consent.

[3] Appointed by President of Senate and Speaker of House with legislative consent.

[4] Pre-audit and post-audit performed by Budget Commission: Governor, elected; Auditor of Accounts, elected; Treasurer, elected; Tax Commissioner, appointed by Governor with Senate consent; Secretary of State, appointed by Governor with Senate consent.

[5] With legislative consent (Senate or Senate and House of Representatives).

[6] Post-audit performed by Bureau of Public Accounts, of which Governor is chief officer.

[7] Post-audit performed by elected auditor and Bureau of Public Accounts, of which Governor is chief officer.

[8] Appointed by Budget Director, who is appointed by Governor with Senate consent.

[9] Appointed by Commissioner of Finance with consent of Governor. Commissioner of Finance is appointed by Governor.

[10] No pre-audit by central agency.

[11] Appointed by Commissioner of Finance with consent of Governor and Council. Commissioner of Finance is appointed by Governor with consent of Council (7 persons appointed by Legislature).

[12] With consent of Council (Lieutenant Governor and 8 elected persons).

[13] No post-audit by central agency.

[14] Pre-audit performed by: Governor, elected; 6 persons, appointed by Governor; Attorney General and Comptroller (both elected); and by Tax Commission.

[15] Appointed by Legislative Counsel Bureau.

[16] With consent of Council (5 elected persons).

[17] Appointed by Comptroller with consent of Governor and Council. Comptroller is appointed by Governor with consent of Council (5 elected persons).

[18] Appointed by Director of Administration with consent of Governor. Director of Administration is appointed by Governor with Senate consent.

[19] No regular post-audit, but Comptroller (appointed by Governor) performed audits required by any department.

[20] Post-audit performed by firm of public accountants appointed by Finance Committee of House of Representatives.

[21] Appointed by Budget Committee: Governor, elected; Chairman Senate Finance Committee, elected; Chairman House Ways and Means Committee, elected.

[22] Appointed by Budget and Control Board: Governor, elected; Treasurer, elected; Comptroller General, elected; Chairman Senate Finance Committee, elected; Chairman House Ways and Means Committee, elected.

[23] Appointed by Commissioner of Administration who is appointed by Governor.

[24] Appointed by Legislative Audit Committee with Senate consent.

[25] Post-audit of Treasurer, auditor of Accounts, and Commissioner of Taxes performed by firm of auditors appointed by Emergency Board: Governor, elected; Chairman Senate Appropriations Committee, elected; Chairman Senate Finance Committee, elected; Chairman House Appropriations Committee, elected; Chairman House Ways and Means Committee, elected.

[26] Appointed by Director of Finance, Budget and Business who was appointed by the Governor with Senate consent.

TABLE A-3

ACCOUNTING SYSTEMS BY STATES—1952

State	DETERMINATION OF THE NATURE OF THE ACCOUNTING SYSTEM				PRE-AUDIT			INTERNAL AUDIT		
	Officer and agency	Elected or appointed	Responsible to	Relation of authority to Governor and Legislature	Officer and agency	Control over	Relation of authority to Governor	Officer and agency	Control over	Relation of authority to Governor
ALABAMA	Chief Examiner, head of Department of Examiners of Public Accounts	Appointed by Legislative Committee on Public Accounts with Senate consent	Legislature through Legislative Committee on Public Accounts	Appointed by Legislative Committee on Public Accounts (with Senate consent) and responsible to Legislature through Committee	Comptroller, head of Division of Control and Accounts in Department of Finance	All agencies	Appointed by (with Governor's approval and from Civil Service Register) and responsible to Director of Finance, who is appointed by and responsible to Governor	No Central Agency	No Central Agency	No Central Agency
ARIZONA	Post Auditor	Appointed by President of Senate and Speaker of House with Legislative consent	Legislature	Appointed by President of Senate and Speaker of House (with Legislative consent) and responsible to Legislature	State Auditor	All agencies	Governor countersigns warrants presented by elected State Auditor	Each department head No Central Agency	His own department No Central Agency	No Central Agency
ARKANSAS	Comptroller	Appointed by Governor	Governor	Appointed by and responsible to Governor and serves at his pleasure	Comptroller	All agencies	Appointed by and responsible to Governor and serves at his pleasure	Comptroller	All agencies	Appointed by and responsible to Governor and serves at his pleasure
CALIFORNIA	Director of Finance	Appointed by Governor	Governor	Appointed by and responsible to Governor and services at his pleasure	Controller	All agencies	None—elected official	Director of Finance	All agencies	Appointed by and responsible to Governor and serves at his pleasure
COLORADO	Comptroller, head of Division of Accounts and Control Auditor (determine nature of accounts for post-audit)	Appointed by Governor subject to Civil Service regulations Elected	Governor Electorate	Appointed by and responsible to Governor Accounting system determine by elected Auditor subject to Governor's approval	Comptroller, head of Division of Accounts and Control	All agencies	Appointed by and responsible to Governor	Each department head No Central Agency	His own department No Central Agency	No Central Agency
CONNECTICUT	Comptroller	Elected	Electroate	None—elected official	Comptroller	All agencies (all claims except pay roll)	None—elected official			
					Auditor of Public Accounts	Pay roll for all agencies	These officials, appointed by Legisture, report irregularities to Governor	No Central Agency	No Central Agency	No Central Agency
DELAWARE	Budget Committee				Budget Committee	All agencies		Budget Committee	All agencies	
	Governor	Elected	Electorate		Governor			Governor		
	Auditor of Accounts	Elected	Electorate	None—elected official	Auditor of Accounts		None—elected official	Auditor of Accounts		None—elected official
	Treasurer	Elected	Electorate	None—elected official	Treasurer		None—elected official	Treasurer		None—elected official

	Tax Commissioner Secretary of State	Appointed by Governor with Senate consent Appointed by Governor with Senate consent	Governor Governor	Appointed by Governor (with Senate consent) and responsible to him Appointed by Governor (with Senate consent) and responsible to him	Tax Commissioner Secretary of State		Appointed by Governor (with Senate consent) and responsible to him Appointed by Governor (with Senate consent) and responsible to him	Tax Commissioner Secretary of State		Appointed by Governor (with Senate consent) and responsible to him Appointed by Governor (with Senate consent) and responsible to him
	(Auditor of Accounts is required by law to perform this function, but lacks necessary funds)				(Auditor of Accounts is required by law to perform this function, but lacks necessary funds)			(Auditor of Accounts is required by law to perform this function, but lacks necessary funds)		
FLORIDA	Comptroller prescribes system for central accounts Auditor—for individual departments	Elected official Appointed by Governor	Electorate Governor	None—elected official Appointed by and responsible to Governor	Comptroller	All agencies	None—elected official	Each department head No Central Agency	His own department No Central Agency	No Central Agency
GEORGIA	Auditor	Appointed by Legislature	Legislature	Appointed by and responsible to Legislature	Auditor	All agencies	This official, appointed by Legislature, reports irregularities to Governor	No Central Agency	No Central Agency	No Central Agency
IDAHO	Auditor Bureau of Public Accounts—Governor is chief officer	Elected Elected	Electorate Electorate	None—elected official	Auditor	All agencies	Claims then subject to approval of Board of Examiners: Governor—elected Attorney General—elected Secretary of State—elected (elected Auditor is secretary of Board)	Auditor	All agencies	This elected official reports irregularities to Governor
ILLINOIS	Director of Finance for all departments under Governor Auditor of Public Accounts for: (1) Judicial branch of Government (2) Legislative branch of Government (3) Elected officials	Appointed by Govvernor with Senate consent Elected	Governor Electorate	Appointed by Governor (with Senate consent) and responsible to him None—elected official	Director of Finance Auditor of Public Accounts	All departments under Governor and other agencies except: (1) Judicial branch of Government (2) Legislative branch of Government (3) Elected officials (4) State colleges and universities All agencies	Appointed by Governor (with Senate consent) and responsible to him None—elected official	Director of Finance Auditor of Public Accounts	All departments under Governor and other agencies except: (1) Judicial branch of Government (2) Legislative branch of Government (3) Elected officials (4) State colleges and universities All agencies	Appointed by Governor (with Senate consent) and responsible to him None—elected official
INDIANA	State Examiner, head of Board of Accounts	Appointed by Governor	Governor	Appointed by and responsible to Governor	Auditor	All agencies except universities and Highway Commission	None—elected official	Each department head No Central Agency	His own department No Central Agency	No Central Agency
IOWA	Comptroller	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent), responsible to him, and serves at his pleasure	Comptroller	All agencies	Appointed by Governor (with Senate consent), responsible to him, and serves at his pleasure	No Central Agency	No Central Agency	No Central Agency

TABLE A-3—Continued

ACCOUNTING SYSTEMS BY STATES—1952

State	DETERMINATION OF THE NATURE OF THE ACCOUNTING SYSTEM				PRE-AUDIT			INTERNAL AUDIT		
	Officer and agency	Elected or appointed	Responsible to	Relation of authority to Governor and Legislature	Officer and agency	Control over	Relation of authority to Governor	Officer and agency	Control over	Relation of authority to Governor
KANSAS	Budget Director Accountant	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent), re-responsible to him, and serves at his pleasure	Auditor	All agencies	None—elected official	Each department head	His own department	
KENTUCKY	Comptroller, Director of Division of Accounts and Control in Department of Finance	Appointed by Commissioner of Finance	Commissioner of Finance	Appointed by (with Governor's consent) and responsible to Commissioner of Finance, who is appointed by and responsible to Governor	Comptroller, Director of Division of Accounts and Control in Department of Finance	All agencies	Appointed by (with Governor's consent) and responsible to Commissioner of Finance, who is appointed by and responsible to Governor	Comptroller, Director of Division of Accounts and Control in Department of Finance	All agencies	Appointed by (with Governor's consent) and responsible to Commissioner of Finance, who is appointed by and responsible to Governor
LOUISIANA	Commissioner of Administration	Appointed by Governor	Governor	Appointed by and responsible to Governor and serves at his pleasure	Each department head No Central Agency	His own department No Central Agency	No Central Agency	Commissioner of Administration	All agencies	Appointed by and responsible to Governor and serves at his pleasure
MAINE	Comptroller, head of Bureau of Accounts and Control in Department of Finance	Appointed by Commissioner of Finance with consent of Governor and Council	Commissioner of Finance	Appointed by (with consent of Governor and Council) and responsible to Commissioner of Finance, who is appointed by (with Council consent) and responsible to Governor	Comptroller, head of Bureau of Accounts and Control in Department of Finance	All agencies	Appointed by (with consent of Governor and Council) and responsible to Commissioner of Finance, who is appointed by (with Council consent) and responsible to Governor	Auditor	All agencies	This official, appointed by Legislature, reports irregularities to Governor
MARYLAND	Comptroller of Treasury Auditor	Elected Appointed by Governor	Electorate Governor and Comptroller of Treasury	None—elected official Appointed by Governor and responsible to him (and Comptroller of Treasury)	Comptroller of Treasury Employment Commissioner	All agencies (all claims except pay roll) Pay roll for all agencies	This elected official reports irregularities to Governor Appointed by and responsible to Governor	No Central Agency	No Central Agency	No Central Agency
MASSACHUSETTS	Comptroller	Appointed by Governor with Council consent	Governor and Council	Appointed by Governor (with Council consent) and responsible to Governor and Council	Comptroller	All agencies	Claims then subject to approval of Governor and Council	Comptroller	All agencies	Appointed by Governor (with Council consent) and responsible to Governor and Council
MICHIGAN	Comptroller, head of Department of Administration	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent), responsible to him, and serves at his pleasure	Comptroller, head of Department of Administration	All agencies	Appointed by Governor (with Senate consent), responsible to him, and serves at his pleasure	No Central Agency	No Central Agency	No Central Agency

MINNESOTA	Auditor—with advice and assistance of:	Elected	Electorate	None—elected official	Auditor	All agencies	None—elected official	Each department head	His own department	
	Commissioner of Administration and	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent) and responsible to him				No Central Agency	No Central Agency	No Central Agency
	Public Examiner	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent) and responsible to him						
MISSISSIPPI	Auditor of Public Accounts	Elected	Electorate	None—elected official	Auditor of Public Accounts	All agencies	None—elected official	Auditor of Public Accounts	All agencies	None—elected official
MISSOURI	Auditor	Elected	Electorate	None—elected official	Comptroller, Director of Comptroller and Budget Division in Department of Revenue	All agencies	Appointed by Governor (with Senate consent) and responsible to him	Each department head No Central Agency	His own department No Central Agency	No Central Agency
MONTANA	Comptroller	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent) and responsible to him	Comptroller	All agencies	Appointed by Governor (with Senate consent) and responsible to him	Comptroller	Various colleges, universities and state institutions	Appointed by Governor (with Senate consent) and responsible to him
					Auditor	All agencies	None—elected official			
					Board of Examiners: Governor	All agencies				
					Attorney-General		None—elected official			
					Secretary of State		None—elected official			
NEBRASKA	Tax Commissioner	Appointed by Governor with Legislative consent	Governor	Appointed by Governor (with Legislative consent) and responsible to him	Tax Commissioner	All agencies under Governor	Appointed by Governor (with Legislative consent) and responsible to him	Auditor of Public Accounts	All agencies	This elected official reports irregularities to Governor
					Auditor of Public Accounts	All agencies	This elected official reports irregularities to Governor			
NEVADA	Legislative auditor	Appointment by Legislative Counsel Bureau	Legislature through Legislative Counsel Bureau	Appointed by and serves at pleasure of Legislative Counsel Bureau and responsible to Legislature through Bureau	Director of Budget	All agencies	Claims then subject to approval of Board of Examiners: Governor—elected Secretary of State—elected Attorney-General—elected (Director of Budget is Clerk of Board and is appointed by Governor)	Each department head No Central Agency	His own department No Central Agency	No Central Agency
					Comptroller	All agencies	None—elected official			
NEW HAMPSHIRE	Director of Accounts in Department of Administration and Control	Appointed by Comptroller with consent of Governor and Council	Comptroller	Appointed by (with consent of Governor and Council) and responsible to Comptroller, who is appointed by (with Council consent) and responsible to Governor	Director of Accounts in Department of Administration and Control	All agencies	Appointed by (with consent of Governor and Council) and responsible to Comptroller, who is appointed by (with Council consent) and responsible to Governor	Director of Accounts in Department of Administration and Control	All agencies	Appointed by (with consent of Governor and Council) and responsible to Comptroller, who is appointed by (with Council consent) and responsible to Governor

TABLE A-3—Continued

ACCOUNTING SYSTEMS BY STATES—1952

State	DETERMINATION OF THE NATURE OF THE ACCOUNTING SYSTEM				PRE-AUDIT			INTERNAL AUDIT		
	Officer and agency	Elected or appointed	Responsible to	Relation of authority to Governor and Legislature	Officer and agency	Control over	Relation of authority to Governor	Officer and agency	Control over	Relation of authority to Governor
TENNESSEE	Director of Accounts	Appointed by Governor	Governor	Appointed by and responsible to Governor and serves at his pleasure	Director of Accounts	All agencies	Appointed by and responsible to Governor and serves at his pleasure	Comptroller of Treasury, head of Department of Audit	All agencies	This official, appointed by Legislature, reports irregularities to Governor
	Comptroller of Treasury, head of Department of Audit	Appointed by Legislature from Civil Service Register	Legislature	Appointed by and responsible to Legislature						
TEXAS	Comptroller of Public Accounts	Elected	Electorate	None—elected official	Comptroller of Public Accounts	All agencies	None—elected official	Each department head No Central Agency	His own department No Central Agency	No Central Agency
	Auditor	Appointed by Legislative Audit Committee with Senate consent	Legislature through Legislative Audit Committee	Appointed by Legislative Audit Committee (with Senate consent) and responsible to Legislature through Committee						
UTAH	Finance Commission (3 persons)	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent) and responsible to him	Finance Commission (3 persons)	All agencies except junior and senior colleges	Appointed by Governor (with Senate consent) and responsible to him	No Central Agency	No Central Agency	No Central Agency
VERMONT	Auditor of Accounts	Elected	Electorate	None—elected official	Auditor of Accounts	All agencies	None—elected official	Auditor of Accounts	All agencies	None—elected official
VIRGINIA	Auditor of Public Accounts	Appointed by Legislature	Legislature	Appointed by and responsible to Legislature	Comptroller. Director of Accounts and Purchases	All agencies	Appointed by Governor (with Legislature consent), responsible to him, and serves at his pleasure	Each department head No Central Agency	His own department No Central Agency	No Central Agency
	Comptroller, Director of Accounts and Purchases	Appointed by Legislative consent	Governor	Appointed by Governor (with Legislative consent), responsible to him, and serves at his pleasure						
WASHINGTON	Director of Budget	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent), responsible to him, and serves at his pleasure	Director of Budget	All agencies	Appointed by Governor (with Senate consent), responsible to him, and serves at his pleasure	Each department head No Central Agency	His own department No Central Agency	No Central Agency
					Auditor	All agencies	None—elected official			
WEST VIRGINIA	Director of Budget	Appointed by Governor	Governor	Appointed by and responsible to Governor and serves at his pleasure	Director of Budget	All agencies	Appointed by and responsible to Governor and serves at his pleasure	Director of Budget	All agencies	Appointed by and responsible to Governor and serves at his pleasure
					Auditor	All agencies	None—elected official			

WISCONSIN	Director of Budget and Accounts	Appointed by Governor with Senate consent	Governor	Appointed by Governor (with Senate consent) and responsible to him	Director of Budget and Accounts	All agencies	Appointed by Governor (with Senate consent) and responsible to him	Each department head	His own department	
								No Central Agency	No Central Agency	No Central Agency
WYOMING	Governor—he is Chief Budget Officer	Elected	Electorate		Auditor	All agencies	None—elected official	Assistant Budget Officer	All agencies	Appointed by and responsible to Governor, who is Chief Budget Officer
								Auditor	All agencies	None—elected official
								State Examiner	All agencies	Appointed by Governor (with Senate consent) and responsible to him

L-3645 2-53 5M

printed in CALIFORNIA STATE PRINTING OFFICE

CALIFORNIA LEGISLATURE
1953 REGULAR SESSION

Report of the

SENATE INTERIM COMMITTEE

on

SAN FRANCISCO BAY AREA METROPOLITAN RAPID TRANSIT PROBLEMS

MEMBERS OF THE COMMITTEE

SENATOR GERALD J. O'GARA, *Chairman*
SENATOR ARTHUR H. BREED, JR., *Vice Chairman*
SENATOR RANDOLPH COLLIER
SENATOR JESS R. DORSEY
SENATOR LUTHER E. GIBSON
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SENATOR HARRY L. PARKMAN
SENATOR JOHN F. THOMPSON
CHARLES VON LOEWENFELDT, *Executive Secretary*
JACQUELINE WILSON, *Committee Secretary*

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LETTER OF TRANSMITTAL

Senate Interim Committee on San Francisco Bay Area
Metropolitan Rapid Transit Problems
San Francisco 2, California
March 26, 1953

Honorable Goodwin J. Knight, *President of the Senate*
State Capitol, Sacramento, California

Dear Sir: Pursuant to the provisions of Senate Resolution No. 194, the Senate Interim Committee on San Francisco Bay Area Metropolitan Rapid Transit Problems was duly organized.

The committee has carefully considered and analyzed all available facts relating to the rapid transit needs of the San Francisco Bay Area. It has analyzed the reports and recommendations of the San Francisco Bay Area Rapid Transit Commission and has studied the suggestions advanced by other interested groups and individuals. The subject was further explored in detail at several public meetings conducted by the committee. Particular attention was given to the development of legislative action vitally necessary for the creation of rapid transit facilities to serve the San Francisco Bay Area.

It submits herewith its report.

Respectfully submitted,

Senator Gerald J. O'Gara, *Chairman*
Senator Arthur H. Breed, Jr., *Vice Chairman*
Senator Randolph Collier
Senator Jess R. Dorsey
Senator Luther E. Gibson
Senator John F. McCarthy
Senator George Miller, Jr.
Senator Harry L. Parkman
Senator John F. Thompson

ACKNOWLEDGMENT

The committee wishes to express its gratitude for the assistance of state, municipal and county officials, representatives of public carriers, chambers of commerce and civic groups who contributed material and data for its use.

The committee particularly desires to acknowledge with appreciation the valuable cooperation of the San Francisco Bay Area Rapid Transit Commission and its staff without whose diligent work progress achieved so far in dealing with San Francisco Bay Area rapid transit problems would not have been possible.

HEARINGS AND APPEARANCES

To assure a thorough evaluation of all available information pertaining to rapid transit as related to the San Francisco Bay Area and to provide opportunity for all interested groups and individuals to make known their respective views, this committee held in the course of its work several public hearings and open meetings.

There hearings were held in San Francisco on November 12, 1952; December 9, 1952; and, February 18, 1953.

Among those who attended and participated in the meetings were:

Assemblyman Richard Dolwig, of San Mateo.

Richard Graves, Executive Director, League of California Cities.

C. D. Allen, San Mateo Consulting Engineer and Member of the Bay Area Rapid Transit Commission.

Alfred J. Lundberg, Past President of the American Transit Association.

Harry A. Mitchell, Chairman of the San Francisco Bay Area Rapid Transit Commission.

Supervisor Marvin E. Lewis of San Francisco, Past Chairman of the San Francisco Bay Area Rapid Transit Commission.

Capt. Angus M. Cohan, Executive Secretary of the Bay Area Rapid Transit Commission.

Thomas Gray of the Downtown Association of San Francisco.

John C. Beckett, Marin County Member of the Commission.

A. Hubbard Moffitt, Jr., Alameda County Member of the Commission.

Edgar L. Buttner, Alameda County Member of the Commission.

Arthur J. Dolan, Jr., San Francisco County Member of the Commission.

George Goheen, Marin County Member of the Commission.

J. Mervyn Daw, Sonoma County Member of the Commission.

A. G. Streblow, Napa County Member of the Commission.

R. W. Breuner, Contra Costa County Member of the Commission.

John J. Sheridan, Contra Costa County Member of the Commission.

Cyril Magnin, San Francisco County Member of the Commission.

Donald W. Cleary, San Francisco Legislative Representative.

FOREWORD

In its April, 1951 report to the Legislature, the original Senate Interim Committee on San Francisco Bay Area Metropolitan Rapid Transit Problems recommended: "That a Bay Area Rapid Transit Commission be created by the Legislature to study, in conjunction with appropriate agencies of the counties and principal communities in the San Francisco Metropolitan Bay Area, the specific local and over-all rapid transit needs."

The San Francisco Bay Area Rapid Transit Commission was established by Chapter 1760 of the Statutes of 1951. The commission is composed of 26 members, as follows:

Chairman: Harry A. Mitchell,[1] San Mateo County.

Vice Chairman: R. W. Breuner,[1] Contra Costa County.

Past Chairman: Marvin E. Lewis,[2] San Francisco County.

Past Vice Chairman: A Hubbard Moffitt, Jr.,[1] Alameda County.

Alameda County: Edgar L. Buttner;[2] Emery Stone;[2] Sherwood Swan;[1] and (vacancy).[1]

Contra Costa County: H. L. Cummings;[2] John J. Sheridan.[1]

Marin County: John C. Beckett[1] and George Goheen.[2]

Napa County: A. G. Streblow[1] and Ralph P. Winston.[2]

Santa Clara County: Nestor Barrett[2] and Jean R. Paulson.[1]

San Francisco County: Stanley G. Breyer;[2] Arthur J. Dolan, Jr.;[1] Cyril Magnin[1] and Thomas A. Rotell.[1]

San Mateo County: C. D. Allen.[2]

Solano County: Alvin Gunther[1] and W. F. Parker.[2]

Sonoma County: J. Mervyn Daw[1] and Charles Kinne.[2]

Ex Officio: Frank B. Durkee, Director of Public Works, State of California.

In the 10 months following its initial meeting on February 14, 1952, the commission held 17 general meetings and numerous other meetings of its committees. The members of the commission are deserving of the highest praise for the many hours they have devoted in endeavoring to solve the San Francisco Bay Area's rapid transit problems.

The commission transmitted a detailed report to the California Legislature on January 12, 1953, in which was made known the work it had accomplished and its recommendations for future action.

This committee endorses the report of the San Francisco Bay Area Rapid Transit Commission and concurs in its findings. Senate Bill No. 109, introduced by members of this committee at the 1953 Regular Session, is in support of the commission's report.

In this report, no attempt will be made to duplicate the detailed facts developed by the commission. All who are seriously interested in the problem should read the commission's report carefully and thoroughly. This report will be confined to the salient points bearing upon legislation needed to make progress at this time.

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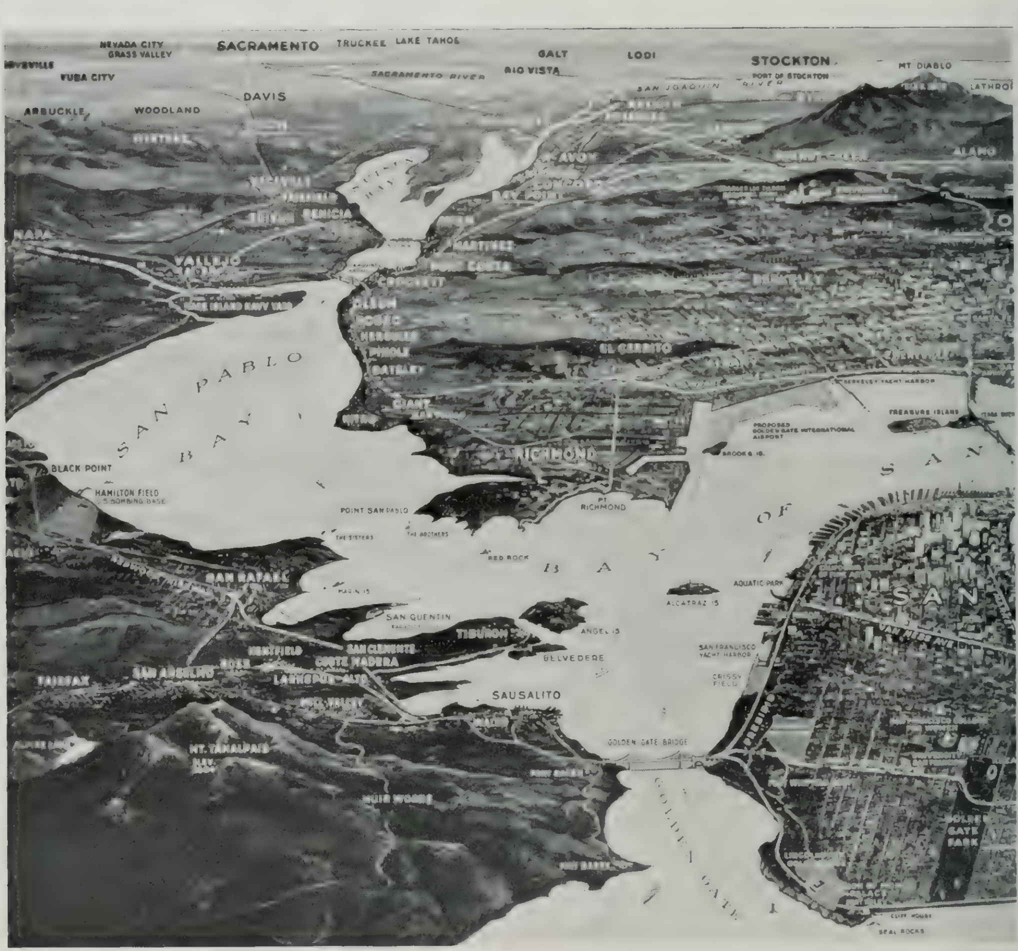
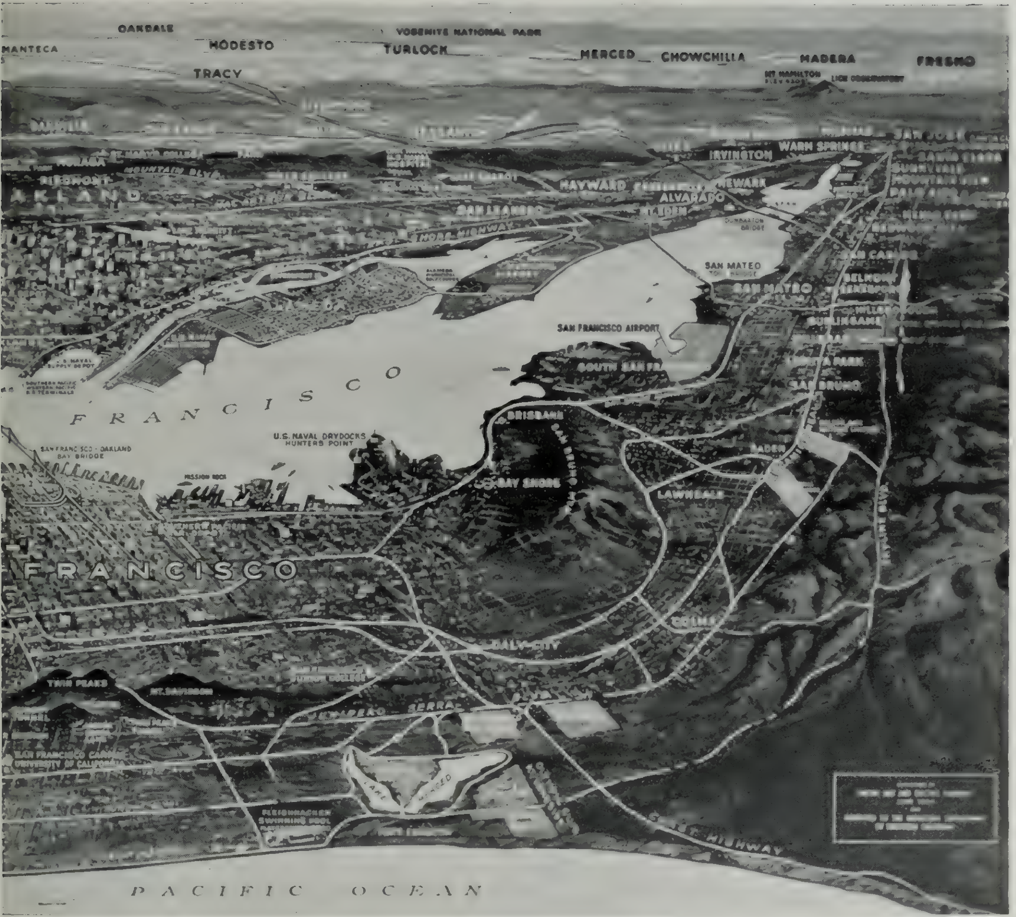
[1] Appointed by Governor.

[2] Appointed by board of supervisors.

SAN FRANCISCO BAY AREA



With population increasing at the rate of 7,000 people per month, the nine-county San Francisco Bay Area finds its 68 cities and countless towns being welded into one economic community



Courtesy of Pacific Gas and Electric Company

REPORT OF THE

SENATE INTERIM COMMITTEE ON SAN FRANCISCO BAY AREA METROPOLITAN RAPID TRANSIT PROBLEMS

There are nine counties in the San Francisco Bay Metropolitan Area covering 7,452 square miles of land with 68 cities and a population of approximately 3,000,000.

Within this area there are bays (513 square miles), straits, rivers, delta regions, flat lands, hills, mountains and agricultural valleys.

During the past 10 years, the population increased 54.5 percent—a population growth surpassed by only five states in the Country. In five years, industries within this area spent approximately half a billion dollars building new plants and expanding existing ones. Two years ago, 29,946 permits for family dwelling units were issued within these nine counties.

And, with each new day, more people are moving into the San Francisco Bay Area.

Entire communities are mushrooming where, a comparatively few months ago, there appeared to be only waste land. Factories, shops, stores, schools, medical and dental centers, office buildings, apartment houses, processing and assembly plants, and countless other structures in which people live and work are fast changing the face of this constantly expanding area.

Land is at a premium throughout the less than 8,000 square miles in the nine counties. Every conceivable use is being made of it. Whether it is on an old cabbage patch on the skyline bordering San Francisco County or in the rich agricultural valleys of Napa, Solano and Sonoma Counties, land is being utilized to the maximum. This is just as true of industrial, commercial, residential and agricultural property in Alameda, Contra Costa, Marin, San Mateo and Santa Clara Counties.

In spite of a seemingly endless multiplicity of governmental subdivisions, physical characteristics that could scarcely be more varied, and a land usage that includes farms and heavy industries, as well as one of the Nation's principal metropolitan financial districts—the economy of this nine-county area must be considered as a single entity.

Economically, each county is related to the others; the well being of one community affects the others. People who reside in one town travel through one or more counties to work in a neighboring city, pursue commercial enterprises in adjacent counties and, when seeking relaxation, can choose theaters, sport arenas, beaches or mountain resorts in still other counties—all within the Bay Area.

The millions of people who live, work and play—and spend their money for the necessities and some of the luxuries of life as well as pay their proportionate share of taxes—in the San Francisco Bay Area do not think primarily in term of counties, cities and unincorporated townships but rather consider their home territory as one place: the area that surrounds San Francisco Bay.

It is impossible to over-emphasize or give too much prominence to the fact that the growth and development of the San Francisco Bay Area, particularly over the past 10 or 15 years, has been such as to literally mold these nine counties and countless municipalities within the framework of one economic community.

FERRYBOATS WERE FASTER

There has been little progress since the days of the ferryboats in providing adequate rapid transit service within the Bay Area. Veteran commuters say that compared to battling today's vehicular traffic in getting from Oakland to San Francisco, it was faster and much less nerve-racking to ride the frequently scheduled ferryboats. A Commonwealth Club survey showed that from downtown Third and Market Street in San Francisco to various points in the East Bay, it takes longer for today's commuter riding the Key System across the San Francisco-Oakland Bay Bridge than it required for the commuter in 1930 who rode the ferries to the Oakland moles and there transferred to faster and relatively frequent connecting trains.

PROGRESS IN REVERSE

The recent history of California in general and of the San Francisco Bay Area in particular has been one of wondrous progress. Every conceivable yardstick has been used to define the far-reaching extent of this progress. It has been lauded by the Nation's press, glowingly referred to by people abroad and pridefully noted in the deliberations of the State Legislature.

Over and over again we hear "It's the place to live. It's the place to work." People of the San Francisco Bay Area are undoubtedly appreciative of the limelight that is focussed upon the progress being made in so many fields of human endeavor.

The praise is deserved. It is, of course, an ideal place in which to live and to work—providing, one can live and work in the same spot, or, if there is much distance between home and office, the individual is willing to put up with traffic jams, parking problems, archaic public transportation systems, high daily cost of travel, waste of time, stress on the human nervous system and, regrettable too frequently, forfeiture of life for the privilege of trying to get from one place to another.

Separating fact from fancy, the vividly apparent truth is that there has been no conclusive progress made in providing people who live in the San Francisco Bay Area—or those who visit this area for business or other reasons—with means of travelling conveniently, economically, rapidly and safely from one point to another within this nine-county community.

Comparing each era's public with its private transportation, today's traveler requires as much patience and fortitude to ride by public transportation from San Jose to Richmond as the voyager who went by stagecoach from Baltimore to Washington one hundred years ago.

PRESENT INTERURBAN TRANSIT OPERATIONS IN THE BAY AREA

The January, 1953 preliminary report of the San Francisco Bay Area Rapid Transit Commission meticulously details the chronological development of mass transit facilities and services linking communities of this area. It is needless to recapitulate here the voluminous statistical compilations and analyses included in that report. However, the following excerpts picture present interurban transit operations in the Bay Area.

PRINCIPAL ROUTES

There are four major interurban operators serving the Bay Area:

(1) The Pacific Greyhound Lines provides service in each of the nine counties and is the sole interurban operator in Marin, Sonoma, Napa and Solano Counties. With the Cities of San Francisco and Oakland serving as principal terminal points, the major lines radiate into the surrounding counties—into the close-in suburban areas of Marin, Contra Costa and San Mateo Counties, and along the main highways into the outer counties.

(2) The Key System Transit Lines operates local service in the East Bay Area and transbay rail and bus service between San Francisco and the Cities of Richmond, El Cerrito, Albany, Berkeley, Oakland, Piedmont, Alameda, San Leandro and Hayward. Certain of the through bus lines of the "local" system can also be termed "interurban" as they furnish the only transit service between Oakland and such widely separated cities as Richmond and Hayward and San Leandro.

(3) The Southern Pacific Company operates a steam-train commuter service between San Francisco and San Jose on its main line right-of-way serving the communities of San Mateo and northern Santa Clara Counties.

(4) The Peerless Stages System provides motor coach service between Oakland and Santa Cruz via San Jose and intermediate points, with a line to Palo Alto via Newark.

In addition to the above principal interurban operations, certain "local" operators also perform minor interurban service.

The Cities of San Francisco and Oakland are the focal points of the present interurban transit pattern in the Bay Area. From these cities a network of lines radiates outward into the suburban areas of Marin, Contra Costa, Alameda and San Mateo Counties. The highest intensity of use is in this close-in area. Beyond this inner area service is restricted to lines penetrating the outer counties to Petaluma, Santa Rosa, and Sonoma in Sonoma County; to Napa, St. Helena and Calistoga in Napa County; to Vallejo, Fairfield and Dixon in Solano County; to Antioch and Pittsburg in Contra Costa County; to Pleasanton and Livermore in Alameda County; and to Los Altos, Saratoga and Los Gatos in Santa Clara County.

STANDARDS OF SERVICE

Equipment

Equipment employed by the major interurban operators consists of motor coaches, on Key System, Pacific Greyhound and Peerless routes; electric trains on the Key System, and steam trains on the Southern Pacific route.

Key System has more than 80 articulated electric units available for service on its transbay rail service, each with a 140-seat capacity. Of this number, however, only 57 units were used during the evening peak in 1951 (compared with 84 in 1946). A total of 164 motor coaches were employed on Key System transbay lines in 1951 during the peak, these averaging 44-seat capacity.

Pacific Greyhound Lines, on its principal interurban routes, employs 200 motor coaches. Of these, 20, with a capacity of 53 seats, and purchased in 1952, are used on the Peninsula lines. Marin County operations require 95 motor coaches with a capacity of 45 seats, purchased in 1940 and 1941. A total of 55 motor coaches are used both on the Peninsula and Vallejo-Napa routes. These also having a capacity of 45 seats were purchased in 1940 and

1941. Contra Costa County lines employ 30 coaches purchased in 1940 and 1941 and averaging 41 seats each.

Southern Pacific operates with steam train equipment exclusively, which, although old, is well maintained. A total of 229 coaches are employed on the Peninsula suburban line, of which 75, seating 96 persons each, are used during peak hours only, and 154, seating 72 persons each, are used during both peak and off-peak periods. The largest train made up for the interurban service consists of 13 coaches—all of the 96-seat type.

Schedules

Schedules maintained by the major interurban operators vary with the route, area served and the patronage received. In general, the close-in lines provide more concentrated service than do those serving outlying areas.

Key System transbay rail routes vary in weekday headways from a minimum of 20 minutes during off-peak hours and 10 minutes during peak hours on the Berkeley and Oakland 12th Street lines to an off-peak 40-minute headway and a peak 20-minute headway on the Claremont and Piedmont lines. Service on Key System transbay motor coach lines varies on weekdays from a headway of 30 minutes during off-peak hours on the Richmond, Alameda, East Oakland and Havenscourt Boulevard lines to a headway of 45 minutes during off-peak hours on the Berkeley Sacramento Street line. During peak-hours service on all motor coach lines is speeded up until a headway of one every three or four minutes is achieved. The great disparity between peak and off-peak service is evident in the scheduling. Express service is provided on all motor coach lines during peak hours. Evening service is typified by one-hour headways on those lines which continue to operate after the evening peak.

On the eight interzonal motor coach lines of the Key System within the East Bay Area off-peak headways vary from six minutes on the Oakland-Richmond lines to 28 minutes on the Seminary Avenue line. Peak-hour service is augmented on all such lines.

Service provided by the interurban lines of Pacific Greyhound is related to the distance traveled from the terminal point and the patronage received. Thus, on the San Francisco-Oakland to Vallejo-Napa line although off-peak service on weekdays varies from 30 minutes to one hour with an accelerated peak-hour service from the Bay cities to Vallejo, service beyond Vallejo to Napa is static at one-hour with no speed-up during peak hours.

A similarly variable off-peak service is operated between San Francisco and Oakland and Walnut Creek and Concord, with a maximum of 45 minutes, but peak service is greatly accelerated, coaches running on headways of from five to seven minutes. Service along the upper bay via Pinole, Martinez and Avon operates on one-hour and two-hour headways, but the Pittsburg-Camp Stoneman area receives more consistent service. Alamo and Danville in the San Ramon Valley are served by but one run in each direction daily.

Service to Livermore from San Francisco and Oakland via Hayward and Dublin operates on an average frequency of 1½ hours. San Jose-Livermore service operates on headways of from two to three hours.

Pacific Greyhound provides commuter-type service between San Francisco and the Peninsula communities. Off-peak service to Burlingame and San Mateo varies from four to twenty minutes, to Redwood City from 10 to 15 minutes, and to San Jose from 15 to 25 minutes. Peak-hour service between San Francisco and Redwood City is greatly accelerated.

Pacific Greyhound provides the suburban areas of Marin County with commuter-type service to and from San Francisco on several routes. Off-peak service to and from Sausalito operates every 30 minutes, to and from Mill Valley every 20 to 30 minutes, to and from San Anselmo every 20 minutes, to and from San

Rafael every 30 to 60 minutes. Peak-hour service operates every 5 to 10 minutes to San Anselmo, Fairfax, Manor, Mill Valley and San Rafael; every 12 to 15 minutes to Corte Madera, Kentfield, Novato, and every 15 minutes to Sausalito. In addition to the San Francisco-Marin County lines, local service within the county is also maintained between San Rafael and Manor on an hourly basis.

San Francisco-Santa Rosa service operates from every 45 minutes to an hour during the day. There are four daily runs between San Francisco and Santa Rosa via Sonoma and Glen Ellen.

From the above it can be seen that Greyhound interurban lines provide commuter-type service with a greatly accelerated peak-hour service only on its Marin County, Peninsula, and Walnut Creek-Concord routes.

Peerless Stages operates between Oakland and San Jose at 45-minute intervals during off-peak hours, and approximately 30-minute intervals during peak hours. Four daily runs are made between Oakland and Palo Alto.

Time—Distance Characteristics

Scheduled times of the major interurban routes from terminal point to a particular point can be compared on the basis of distance traveled. In this regard it is apparent that the Southern Pacific offers the fastest service. For example, the fastest scheduled time for the San Francisco-San Jose run of the Southern Pacific, a distance of 47 miles, is one hour and five minutes, the same interval required for the fastest schedule between San Francisco and Novato, a distance of 29 miles. Using San Francisco terminals as the starting point, the following can be reached in these fastest scheduled time intervals:

20 minutes, South San Francisco, Golden Gate Bridge toll plaza, and 40th and San Pablo in Oakland;

30 minutes, San Mateo, Ashby Avenue in Berkeley, and the Grand Lake area of Oakland;

40 minutes, Palo Alto, Sharp Park, Mill Valley, Richmond, Albany, San Leandro and Alameda;

50 minutes, Mountain View, Montara, Kentfield, Pinole and Lafayette;

One hour, Santa Clara, Half Moon Bay, Ignacio and Walnut Creek.

PATRONAGE

The available data on current interurban transit operations do not lend themselves to the presentation of a complete picture of these operations in terms of the origin and destination of passengers, or the precise description of passenger volumes handled at particular points. It has been possible, however, to develop a general pattern showing daily interurban transit passenger flow.

This general pattern of operation is centered on a hub—San Francisco and the East Bay cities. The greatest number of interurban transit passengers either originate from or are destined for this center. The greater the distance from the center the less the intensity of transit operations, as measured in terms of daily passenger volumes.

The San Francisco-Oakland Bay Bridge carries the greatest number of daily transit passengers—72,600 total trips to and from San Francisco and the East Bay counties. Of this number, 69,250 are patrons of the rail and bus lines of the Key System, and 3,350 of Pacific Greyhound.

San Francisco-Peninsula service ranks second in intensity in terms of passenger volume. A total of 40,400 daily passenger trips are made between San Francisco and the communities of the Peninsula—30,200 by the Southern Pacific and 10,200 by Pacific Greyhound.

Interurban service between San Francisco and Marin and Sonoma Counties

accounts for 11,600 daily trips to or from San Francisco. Pacific Greyhound is the sole carrier in this operation.

A total of 124,600 daily transit trips take place to and from San Francisco. Of this number 58.3 percent occur over the San Francisco-Oakland Bay Bridge, 32.4 percent to and from the Peninsula, and 9.3 percent to and from Marin County and points north.

Distribution of San Francisco-East Bay passenger volumes can only be determined on the basis of the total number of daily passengers carried by each transbay line. Of the total 69,250 passengers carried by Key System transbay lines, nearly 44,000 are by train. A total of 19,200 daily transbay trips are made on the rail line and the motor coach lines serving Berkeley and Albany; 17,250 on the two rail lines to central Oakland; 8,700 on the two coach lines serving East Oakland; 6,300 on the Piedmont rail line; 5,600 on the Claremont rail line; 4,700 on the Richmond coach lines; 4,300 on the Alameda motor coach lines; and 3,200 on the coach line to Hayward.

Within the East Bay Area, itself, the eight coach lines which operate between zones have a combined daily volume of 18,900 interzonal passengers.

Outside of the Richmond area transit volumes in Contra Costa County are relatively small. On Pacific Greyhound's line linking San Francisco and Oakland with Vallejo and Napa via upper Bay, average daily passenger volumes are 2,000 at Richmond, 1,100 at Pinole, 1,000 at Crockett and Vallejo, and 250 at Napa.

The Greyhound route connecting San Francisco and Oakland with the interior of Contra Costa County via the Broadway Tunnel has an average daily passenger volume of 3,500 at Orinda, 2,100 at Walnut Creek, 1,200 at Concord and 950 at Pittsburg.

Daily passenger volume data for Peerless Stages operating in southern Alameda and northern Santa Clara Counties were not available for this study, but as the operator has relatively few scheduled daily trips and a yearly passenger volume for the entire system of $1\frac{1}{3}$ millions, it would appear that daily volumes are quite small.

Available data on Southern Pacific Peninsula service refers to the total number of daily trips between each station and San Francisco. Thus, the number of trips between San Francisco and the following selected points is: South San Francisco, 630; San Bruno, 1,200; Burlingame, 5,040; San Mateo, 3,300; Hillsdale, 2,700; San Carlos, 2,500; Redwood City, 3,400; Palo Alto, 4,400; and San Jose, 1,235. Because of the manner in which these data were available, it is not possible to show intercity passenger volumes carried along the line between San Jose and San Francisco.

Pacific Greyhound lines on the Peninsula perform an important interurban service, although they handle considerably less volume than does the Southern Pacific. Total daily passenger volumes carried are 7,200 at Millbrae (this includes Millbrae passengers as well as those passing through the city); 6,100 at Burlingame; 5,000 at San Mateo; 2,500 at Redwood City; 1,500 at Sunnyvale; and 1,300 at San Jose.

Passenger volumes in Marin County are greatest in the southern and eastern portions of the county—the more heavily developed suburban areas. Daily volumes handled by Pacific Greyhound are 11,600 on the Golden Gate Bridge; 1,200 at Sausalito; 9,900 at Marin City; 1,500 at Mill Valley; 4,400 at Corte Madera; 3,000 at San Anselmo; 700 at Fairfax; 3,000 at San Rafael; and 1,750 at Hamilton Field. The daily passenger volume at Santa Rosa is 1,020. Service north of the latter city is not considered as essentially interurban in character, consisting of the long distance lines to Eureka and Portland.

Yearly Passenger Volumes, Principal Interurban Transit Operators

In general, examination of annual passenger volumes carried by the major interurban operators in the Bay Area shows a gradual decline during the past five years. The following table indicates the number of passengers carried in each year from 1947 through 1951 for Key System, Pacific Greyhound, Peerless Stages, and Southern Pacific.

A total of 43,686,754 passengers were carried by the four major carriers during 1951 on their interurban routes. Of this number, 43 percent were carried by Key System transbay lines, 35 percent by Pacific Greyhound, 19 percent by Southern Pacific, and 3 percent by Peerless Stages. More than 53 percent of the total number of passengers traveled to or from or within the eastern and northeastern counties of Alameda, Contra Costa, Solano and Napa. The great bulk of these movements occurred in the close-in East Bay cities. Another 35 percent traveled on those lines serving the Peninsula, and 12 percent on routes in Marin and Sonoma Counties. Virtually all routes included in the tabulation have a terminal in either San Francisco or Oakland.

In general, there is a direct correlation between transit patronage and the degree of urban development. The East Bay cities and adjacent areas are more intensely developed and populated than is the Peninsula, which in turn exceeds the northwestern counties in terms of urban development and population.

The correlation between transit patronage and population, however, does not extend to recent trends. Although the Bay Area has experienced a great increase in population during the past few years, the number of transit passengers using interurban facilities has declined. In the entire region this decline has been 24 percent.

The only major interurban operator to experience increased patronage during the five-year period was the Southern Pacific on its Peninsula service, with an increase of 8 percent.

All the remaining routes showed a fairly constant decline ranging from 21 percent to 31 percent, with the exception of the Pacific Greyhound's San Francisco-Vallejo-Napa line, which lost 59 percent of its 1947 patronage during the five-year period, partly because of postwar changes in industrial and military activity.

ANNUAL PASSENGER VOLUMES, PRINCIPAL INTERURBAN TRANSIT OPERATORS, SAN FRANCISCO BAY AREA, 1947-51

		Pacific Greyhound Lines							
Year	*Key System total transbay* [1]	*Contra Costa city route* [2]	*Marin-Sonoma routes* [3]	*Peninsula routes* [4]	*Vallejo-Napa route* [5]	*Total*	*Peerless Stages* [6]	*Southern Pacific* [7]	*Total*
1947	26,749,882	1,981,981	7,324,771	9,234,951	2,604,221	21,145,924	1,897,676	7,524,101	57,307,583
1948	24,519,747	1,917,803	7,185,429	9,678,783	2,340,803	21,122,818	1,849,700	7,547,420	55,039,685
1949	21,607,366	1,506,067	6,373,744	8,657,694	1,735,939	18,273,444	1,809,536	7,859,146	49,549,492
1950	19,326,226	1,610,246	5,709,467	7,658,657	1,329,137	16,297,507	1,508,714	7,952,892	45,075,339
1951	18,929,775	1,767,139	5,211,900	7,281,964	1,059,865	15,229,868	1,365,386	8,161,725	43,686,754
% change '47-'51	—29%	—11%	—29%	—21%	—59%	—28%	—28%	+8%	—24%
% of total, '51	43.3%	4.0%	11.9%	16.6%	2.4%	34.9%	3.1%	18.7%	100.0%

NOTES:

[1] Includes Transbay rail and motor coach lines, and Yerba Buena Island passengers.

[2] San Francisco, Oakland, Orinda, Walnut Creek, Concord, Pittsburg.

[3] San Francisco-Marin County Service, and San Francisco-Santa Rosa Service.

[4] San Francisco-San Jose.

[5] San Francisco, Oakland, Richmond, Pinole, Crockett, Vallejo, Napa.

[6] Entire system: Oakland to San Jose, Los Gatos, Santa Cruz, Palo Alto via Hayward, Niles and intermediate points.

[7] San Francisco-San Jose and San Francisco-Los Gatos Service.

THE BIG PARADE

Because of inadequate rapid transit service, people within the Bay Area use their automobiles for more convenient transportation. The San Francisco-Oakland Bay Bridge carries approximately 130,000 auto passengers a day. This photo from Yerba Buena Island shows a stream of cars returning to the East Bay from San Francisco across the Bay Bridge.

MORE PEOPLE—LESS RAPID TRANSIT

The population of the San Francisco Bay Area is increasing at the rate of approximately 7,000 people per month.

Put simply, that means there are constantly growing numbers of people who each day need to move from one place to another. Too few are using what rapid transit facilities exist—too many believe they must turn to private automobiles for convenient transportation. In the past five years, interurban transit patronage has decreased by 24 percent.

The resulting strain on densely populated areas is staggering. For example, last year, during a 24-hour period, the San Francisco Chamber of Commerce sponsored a count of persons entering and leaving San Francisco. Whether to or from the North Bay, Peninsula, or the East Bay, 79 percent of the people counted traveled by automobile, leaving only 21 percent who used transit service.

During that same 24-hour period, some 211,323 persons brought 120,706 automobiles to San Francisco. One can readily understand how this daily influx is affecting San Francisco's traffic and parking problems.

Instead of more rapid transit lines being created to cut down on the number of automobiles jamming the highways, mass transit service is actually being reduced. A case in point is the Key System Transit Line's application to the California Public Utilities Commission for permission to abandon train service on the "A" and "B" lines in Oakland and on the San Francisco-Oakland Bay Bridge. The proposed abandonment would further reduce existing mass rapid transit facilities rather than meet the need for expanded facilities. These lines serve some of the most densely populated communities in the San Francisco Bay Area.

At the rate rail service is being reduced on the Key System, it may be anticipated that the day is not far off when effort will be made to abandon all trains carrying passengers across the San Francisco-Oakland Bay Bridge. It takes no imagination to contemplate the dire consequences of such action.

The worst effect of this gradual replacing rail service with bus service is reflected in the load of automobile traffic being added to the already excessive number of vehicles crossing the San Francisco-Oakland Bay Bridge.

LINING UP FOR TRANSPORTATION

A high price in time, money, discomfort and nervous strain is being paid by those commuting from one place to another within the Bay Area. These people are shown waiting outdoors in line at the Key System Terminal in San Francisco for bus transportation across the San Francisco-Oakland Bay Bridge. Up-to-date rapid transit service would do away with such congestions. The Key System Terminal was designed and built primarily for rail transit with comfortable indoor facilities for passengers. In recent years, however, trains have been steadily supplanted by busses and passengers are forced to wait outdoors.

MODERN TRANSIT SERVICE

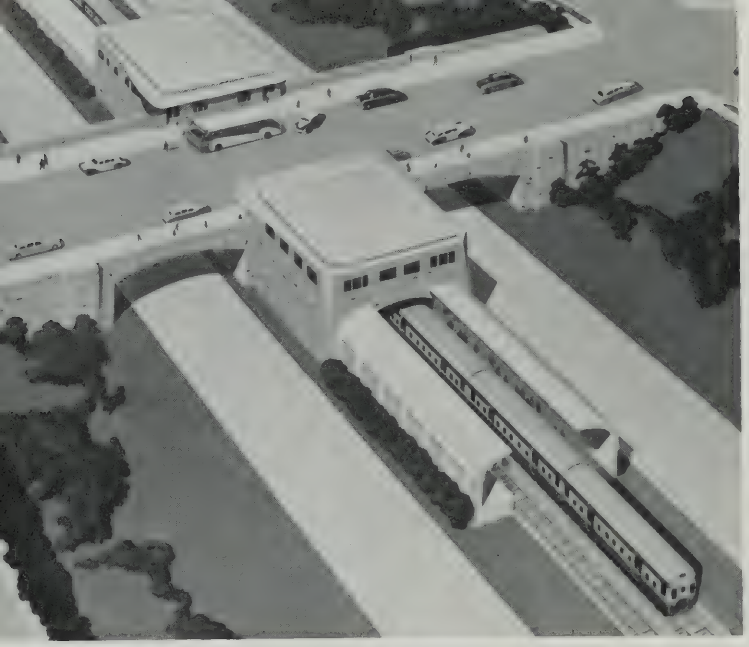
In marked contrast to the crowded scene on opposite page is this view in the San Francisco Key System Terminal showing trans-bay travelers about to take a train to Oakland. If the Key System is granted permission to abandon its rail service on the "A" and "B" lines, crowds waiting outside for buses will be larger and the already over-taxed automobile lanes will be further congested. Trains carry larger loads more quickly and comfortably.

Instead of transporting more people by rail, the emphasis now seems to be to get these same people to ride the automobile lanes. This, in truth, represents anything but progressive thinking.

An analysis of train passengers on the Bay Bridge graphically shows that whereas in 1939 more than 19,000,000 people were carried by rail transportation, and the wartime peak was 26,469,000 in 1945, the passenger volume dropped to 10,254,986 in the year 1951. Some of the 1939 and 1945 passengers may have left the area, others may have died, but the population of this same area has constantly increased and we can only assume that within a dozen years people who once rode by train now use the automobile lanes.

Transbay rail service is essential to the rapid transit needs of the area. Action must be taken to prevent further reduction in rail service and facilities.

This committee has consistently urged the keeping up of rail service and strongly opposes abandonment of the "A" and "B" lines. Appended to this report is text of a resolution disapproving such action which was passed at the time the abandonment was first proposed.



MODERN RAPID TRANSIT . . . AN ARTIST'S CONCEPTION

Mass transit service rather than private automobiles should transport the majority of commuters. Whereas a freeway lane only accommodates about 2,500 automobile riders per hour, modern rapid transit trains, such as the one shown in this drawing, can serve up to 60,000 persons per hour per track.

PEOPLE—NOT VEHICLES—NEED MOVING

There must be devised and put into operation a system, or systems, which will move great numbers of people—not vehicles—within the San Francisco Bay Area. Otherwise, progress within this area will be seriously retarded and, consequently, the people who live and work within these counties will be seriously affected economically.

The rapid transit problem, with which we are concerned, primarily involves providing mass transportation facilities which the people of this nine-county community will use in getting to and returning from the places they not only wish to get to but, in most cases, must get to.

And, these facilities must be such as to be the incentive and reason for people of this area using rapid transit service rather than private automobiles for necessary transportation.

There is no disputing that a California network of modern highways and freeways is essential. But these highways should serve tourists from distant points, business people who motor far and wide, Sunday-drivers, sightseers, shoppers and visitors from outlying areas and the flow of trucks that carry foodstuffs, manufactured goods and other essentials. They should not be, as they are now, primary avenues for transporting daily commuters in private automobiles.

Our problem is to move people—thousands of them—who must daily be transported more than walking distances from their homes to work and, then, back again. They must be transported by a method that does not involve the automobile that is parked all day, congesting metropolitan areas.

We must recognize that the automobile is only carrying, on the average, 1.7 persons; or 2,200 to 2,500 persons per hour per lane. Modern rapid transit trains can carry 40,000—or even 60,000—persons per hour per track.

GOLDEN GATE BRIDGE COMMUTERS APPROACH THE TOLL PLAZA IN SAN FRANCISCO

In the year following its 1937 opening, the Golden Gate Bridge carried 3,311,512 vehicles but by 1952 this figure rose to 11,195,581. With each increase in transit fares, more people have taken to private automobiles for transportation. Pacific Greyhound Lines, providing the only rapid transit service within the northern counties of the San Francisco Bay Area, is reported about to request increases ranging from 30 to 70 percent in bus fares to Marin County.

FARES RISE—PASSENGER VOLUMES DECREASE

In an effort to meet rising costs, suburban transit systems have been increasing fares. In mid-March of this year there were reports Pacific Greyhound Lines may ask for a 70 percent increase in bus fares to Marin County. A company official was quoted as saying Greyhound was losing about $20,000 a month in direct costs on the Marin run.

Yet, regardless of the community, with each increase in transit fares, people turn to automobiles for transportation.

The answer to solving the San Francisco Bay Area's rapid transit problems is obviously not to be found in merely altering the present operational setup. Existing transit lines and systems are, in effect, no longer able to fit properly into the present day situation.

In practically every case, commuter systems—whether publicly or privately owned—operate at deficits. The Southern Pacific Peninsula commuter service, for example, reflects an annual deficit of about $1,000,000.

WHERE TO PUT 48 LANES OF FREEWAYS?

The San Francisco Bay Area Rapid Transit Commission estimated in its report that the nine counties concerned can ultimately support 10,000,000 people; with a population of approximately 3,600,000 predicted for 1970—an increase of 1,000,000 people over the population of 1950.

"The transportation requirements of the future cannot be handled by private vehicles alone. If the estimated passenger movements in 1970 were to be satisfied under the present pattern of regional transportation, it is estimated that a total of 48 lanes of freeway standard would be required to provide adequate capacity to handle anticipated peak-hour volumes at the principal gateways to the Central Metropolitan Area, consisting of San Francisco and that portion of Alameda County extending from Albany to the north limits of Hayward. Ten to 12 lanes would be required to accommodate passengers in private cars crossing the Bay between the eastern and western parts of the Central Metropolitan Area," the commission states.

It is fantastic to contemplate eventually constructing 48 lanes of freeways at the principal gateways to the area. The cost would be astronomical. And, furthermore, where would we place the structures that we remove in order to clear land on which to build such freeways?

Assuming, for the moment, that we continue endlessly to build freeways converging on our metropolitan centers, what happens to the automobiles that come into our cities via these freeways?

As one authority on the subject graphically points out: "No amount of money can solve the parking problem in cities of anything like the present pattern. The reason is that the space required for parking is so great that if practicable facilities for parking were to be provided for all those who work in the 31-story Russ Building in San Francisco, for example, the floor area required would be equal to that of the Russ Building. But one cannot build garages resembling the Russ Building.

"Experience has shown that three, or at the most four, levels are the maximum feasible for self-parking. Employee-operated garages are not only expensive, but the delay during the peak hours is intolerable. Hence, the land area required for the employees in the Russ Building alone

MAKING WAY FOR A FREEWAY

With commuters relying on automobiles for transportation, it is estimated that by 1970 approximately 48 lanes of freeway would be required for peak-hour traffic volumes at the principal gateways to the central metropolitan districts of the Bay Area. Homes and factories would have to be moved. The cost of such freeway construction would be staggering compared to the cost of providing modern mass transit service. This photo shows construction of US 101 Bayshore looking south from Vermont.

JUST A NORMAL TRAFFIC SNARL

This congested downtown street scene shows Third Street near Market in San Francisco. Not only does this arterial carry busses serving commuters from the Southern Pacific's Townsend Street Station, it is also one of the principal routes for motorists driving into the city from peninsula communities. During the afternoon rush hour, traffic in the other direction gets stalled and commuters in busses to the railroad station are kept waiting while their trains depart from the depot.

would be enormous, and on top of that, at least a similar area would be required for parking the automobiles of those who come to do business in the building. By this time, one has surrounded the building with vast blocks of parking structures, and the demonstrated convenience of a concentrated business area has disappeared."

Attention is directed to a nation-wide study conducted this year by 42 foremost business and professional spokesmen from organizations directly concerned with problems of downtown congestion. The project was conducted by *Architectural Forum* magazine. Participants included architects, merchants, city planners, parking garage operators, traffic experts, truck operators, city officials and auto manufacturers. These are some of their published conclusions:

"Clearer thinking and much broader understanding must begin immediately to avoid downtown strangulation. Any attempt to cure traffic congestion in the street would treat symptoms rather than the disease.

"Can a city afford parking space for unlimited parking, which is estimated (by one big city) at $4,000 for each added rush-hour car commuter *when that amount of money is three or four times the investment per commuter that city would need for the most expensive form of rapid transit?*

"Few large cities can solve their traffic and congestion problems without relying heavily on mass transportation rather than on the private car.

"Good mass transportation made the centralized big city possible and good mass transportation is essential to preserve it.

"All cities need a freeway system, but even with freeways, congestion will continue unless mass transit carries a large proportion of all visitors to central business districts. No highway system can be devised to serve these people."

The impact of traffic strangulation and congestion on downtown properties is being felt with alarming effect. It has brought about decentralization of business (a spreading out into the suburbs) and a consequent decrease in the volume of business conducted by downtown establishments. Thought must be given to saving the downtown areas of cities with their high tax base. The obvious step is to deal with the traffic problem—the problem of too many automobiles in too little space. Rapid transit is a major part of an over-all solution which will employ all forms of transportation to maximum efficiency.

HOW TO PROCEED

The challenge of solving the San Francisco Bay Area's rapid transit problems is not new. It is an old challenge, one that has confronted the California Legislature for many years.

Tangible progress in the right direction was made with the creation of the San Francisco Bay Area Rapid Transit Commission.

Its chairman, Harry A. Mitchell, is past president of the Western Pacific Railroad, as well as of the California State Chamber of Commerce. A recognized authority in his field, he served as Transportation Director for California under our State's World War II Civilian Defense organization.

The commission has dealt squarely with the problem. No greater attention to responsibility could have been demonstrated.

The commission's analysis of the problem is clear. Its report is comprehensive. Its recommendations are conclusive.

There are two striking factors that should influence constructive action at this time. The first, and most encouraging factor, is that the commission, in presenting its views to the governing bodies of the nine counties concerned, was received with enthusiasm. The respective boards of supervisors demonstrated a desire to cooperate and to participate financially.

The second factor of which we must take cognizance is that public awareness of the desperate need for adequate rapid transit is at an all-time high. Newspapers, magazines, editorial writers, columnists, commentators and the all-important man-in-the-street are talking about the crying need for an up-to-date rapid transit system. This is not the result of some highly organized publicity campaign nor of a high-pressure lobbying activity. This is the expression of the will of people who are weary of talk, graphs and contemplation and who are asking for constructive, definite action—action with an accomplished result in the offing.

TIME IS OF THE ESSENCE

Appended to the report of this Senate committee are the conclusions and recommendations of the San Francisco Bay Area Rapid Transit Commission.

This committee generally concurs in the conclusions and recommendations of the commission.

There is an urgency in launching the four-point studies recommended by the commission. It would be foolhardy to undertake the development of a master rapid transit plan without first having at hand the necessary technical and engineering data. It is estimated that these studies will require three years for completion. In other words, 36 months will go by before there can be visual evidence of progress in providing the San Francisco Bay Area with the rapid transit so essential for the well-being of this nine-county community as well as of the economic structure of California.

LOOKING TO THE FUTURE

According to an authoritative viewpoint, to which this committee gives respectful consideration, the time has come for mass transit for the San Francisco Bay Area to be thought of in the same terms as harbor facilities, civic auditoriums, and airports.

Transit is a necessary public service which cannot be maintained in such a manner as to attract public patronage out of fares alone. The only alternative is absorption of deficits from the general tax base.

Looking ahead, we must have rapid transit if downtown property values are to be maintained. Merchants think nothing of paying the upkeep of parking facilities which patrons of their businesses use free. It is just as moral for the public to be subsidized through tax support of mass transit facilities which bring them to downtown business centers as for the merchants to contribute to upkeep of free parking for patrons—or free elevators, for that matter.

ANSWER LIES IN AN "UNORTHODOX SYSTEM"*

If we are to succeed in solving the problem, we must also face the fact that no existing system—no "orthodox" system, of rapid transit can solve it.

We must evolve a system that can effectively meet the changes which have come upon us in the last three decades. We must recognize, and meet, three great factors:

1. **Business will continue to be done during the daylight hours, and transportation from home to business must be performed during brief peaks.**
2. **Large numbers of people will live in suburbs, where there is garden space and breathing space.**
3. **No form of public transit can serve every home in the suburbs at a cost that will induce people to use it in preference to the admitted convenience of the automobile.**

Fortunately, the progress of science has made it possible to create a system that can meet each of these conditions.

Such a system, with capacity equal to at least four five-lane freeways, with no grade crossings, would be designed particularly to cater to the vast majority who now commute by automobile. As has already been stated, no "orthodox" system can do this. It must be a system which assumes that suburbanites will still use their automobiles, not to drive to the city, but to drive from their homes to self-parking facilities at each station on the system. Such stations would not be in the suburban cities, as at present, but between them, where land for the parking structures would require less destruction of existing homes, etc. In the case of the Peninsula, for example, they could be east of Bayshore Highway in what is now tideland.

The system must be fast, it must be comfortable, and it must operate at very close headways during the peak hours—for the automobile has made people impatient of waiting even a few minutes.

It must distribute its patrons reasonably well over the industrial, financial, and shopping areas of the metropolitan center—for the automobile has made people impatient of walking.

It must charge a fare so low that it becomes absurd to commute to the metropolitan center by automobile. This item is a "sine qua non"—for no one counts the cost of using an automobile, while everyone counts the cost of a transit fare. Any fare greater than 10 cents from the usual commuter area will fail to accomplish the purpose. That is also a convenient fare to collect at modern turnstiles.

Such a system, with capacity equal to at least four five-lane-in-each-direction freeways, could be built for the cost of one such freeway, and would of course eliminate the cost of parking facilities otherwise necessary for the automobiles that the freeways would bring in.

It would have no grade crossings; would be in subway in the metropolitan area for esthetic reasons, and at grade, in subway, or overhead, in the suburban areas as the topography or esthetic factors might dictate.

If it is really to solve the problems such a system must differ radically in three respects from existing commuter systems:

1. **The form of trains used.**
2. **The method of operating the trains.**
3. **The method of financing the construction.**

No new inventions nor devices untested by long use are necessary, but merely the adaptation of proven elements to this particular use. There is no hazard whatever that anything suggested herein "won't work"; all are proven by use in other fields.

---

* From remarks by Alfred J. Lundberg, past president American Transit Association, January, 1953.

MONORAIL . . . AS AN ARTIST SEES IT

Solving the rapid transit needs of people living and working in highly congested areas calls for long-range thinking and a departure from present-day conception of mass transit. This retouched photograph shows an artist's conception of an overhead monorail system as it would look following the course of a multilane freeway. Such a system is just one of several types suggested to meet mass transit needs.

The trains should be long, streamlined, articulated trains. (Articulation is the placing of trucks at joints between car body sections, as in main-line streamline trains.)

All the principles evolved in the development of the most up-to-date street car would of course be incorporated; rubber-insert wheels, rubber-sprung trucks, longitudinal motor shafts, multistep control with acceleration and deceleration of three miles per hour per second or more, braking by combination of reactance, automobile-type band brakes, and magnetic track brakes; light weight construction; rubber-foam seating, etc. Loading and unloading would of course be at car floor level.

The long articulated trains would permit convenient distribution of the load to take advantage of all available seats; it is of course assumed that the service would be operated on the basis of a seat for every passenger.

Another purpose of using long trains is to get maximum capacity. Minimum safe headway is in the vicinity of 40 seconds; trains seating 600, operating on a 40-second headway, can carry 54,000 seated passengers per hour, but one cannot reach a 100 percent load factor in practical operation, unless it be for special events as to or from a football game.

Herein lies the principal key to the necessary low fares, for in "orthodox" transit operations, direct labor is 55 percent of operating revenue. In commuter service, operating labor is the crucial item.

Key System's railway on the San Francisco-Oakland Bay Bridge has General Railway Signal Company's system of "cab signal train control," in which each of four permitted speeds, depending upon the occupancy of track ahead or upon curves, etc., is indicated to the motorman by visual signals in his cab. If the signal changes to a more restrictive indication, a bell rings to remind him. Unless he responds within a few seconds, the apparatus takes over. Signals are transmitted to the train by magnetic induction, being picked up from the running rails by a coil suspended over the track. The running rails are electrically divided into "blocks"—the length varying with the grades,

WHERE COMMUTERS PARK →

These automobiles are parked in a lot provided for commuters by the Southern Pacific Railroad and Redwood City. When all of the San Francisco Bay Area is served by efficient rapid transit systems, similar parking lots strategically located will make it possible for commuters to leave their cars at the nearest rapid transit station rather than drive to work.

curves, etc. A train in any "block" short-circuits the current flowing in the running rails of that block; this causes appropriate signals to be given following trains for as many blocks behind as are necessary for absolute safety, bringing about stoppage or reduction of speed as may be needed.

It might even seem simpler and quicker to eliminate the motorman, and let the signals themselves, instead of being merely visually displayed to him, do the work. No risk is involved, for unless everything is working the train cannot move at all.

No operator is used on an automatic elevator, yet in modern models it not only stops at any one of any number of floors, but reverses its direction of travel on the pushing of a button, and returns to ground floor after being idle for a predetermined interval.

As in modern automatic elevators, the trains could not start until all doors were closed; no doors could open (except by hand in emergency) unless train is at complete stop at the exact position in the station. Unlike present subways, trains would stop at exact spots, by mechanism similar to "self-leveling" elevators; this would permit the use of automatic doors on the station platforms as well as on the trains, and eliminate the hazard of people being pushed off into the track area. All doors would have "sensitive edges," so that no one could be caught in a door; if it touched anyone, it would reverse its movement.

Some distance back of the doors on station platforms there would be modern turnstiles, which would lock a few seconds before departure of train, so that schedules could be maintained despite late-comers holding platform and train doors open by means of the sensitive edges—as often happens in the existing subways.

The whole would of course be under the control of train directors at a central point, who would have before them the same kind of il-

luminated map of the system that is used by main line railroads having "centralized train control." This shows the position and progress of each train. They would also be in communication with each train by carrier current telephones, and with each station by wire. They would also, by industrial television, observe the arrival and departure of trains at each station, and any unusual condition that might arise.

One employee on each train would give information, preserve order, and telephone train control for help at next station in event of illness or disorder on board, or in case of any other unusual condition. These might be part-time employees.

The train directors could, by remote control devices, cause any station to be by-passed if train fully loaded (of which they would be informed by employee on board), or in the event train was destined to storage at close of peak. Some 70 percent or more of the equipment works in the short peaks only; the nonpeak can be served by 30 percent of the equipment in present practice. It may of course be that fast 10-cent service would induce much more nonpeak riding than is customary at present.

No new invention is needed for completely automatic operation. All necessary devices now exist and are in actual use in other fields.

The free-running speed would probably be some 65 miles per hour; higher speeds are attainable but involve higher cost for both capital and power, and are of little value in suburban service because the higher the speed, the greater the time lost in deceleration for station stops and acceleration afterwards.

* * *

CALIFORNIA'S STAKE IN SAN FRANCISCO BAY AREA RAPID TRANSIT

The economic strength of California generally is greatly dependent upon the San Francisco Bay Area. If this area is to suffer in the years ahead as a consequence of inadequate rapid transit service and accompanying strangulation of trade and enterprise, the economy of the whole State will suffer proportionately.

Although the development of rapid transit for the San Francisco Bay Area is not and should not be dependent upon a planning and engineering program encompassing all of California, it is not a local problem.

The State has a large stake in the responsibility for bringing about adequate rapid transit within this area.

In the opinion of this committee, the Legislature should consider the Bay Area's rapid transit needs in terms of how this problem affects California.

From the point of view of economics, if from no other standpoints, Bay Area rapid transit must be looked upon other than as a local or regional responsibility. An up-to-date rapid transit system serving the nine Bay Area counties would greatly reduce the tax burden as it would cut down on state tax costs for constructing freeways.

In its 1951 report, the Senate Interim Committee on San Francisco Bay Area Metropolitan Rapid Transit Problems stated:

> "Though no formal technical study has been made by this committee or is available to it, it has nevertheless been impressed by the large costs which would be involved in securing unobstructed rights of way through heavily congested urban areas which any integrated Rapid Transit System must contemplate.
>
> "In studying the methods used to solve similar problems in other high-priced property areas of the Nation, it was discovered that, in certain notable instances, transit routes were combined with freeway development. In this manner the securing of a single right of way to serve freeway construction and transit lines materially reduced the cost of both.
>
> "No provisions have been made in the State's planning of its series of freeways in the San Francisco Bay Area to accommodate transit rights of way.
>
> "In discussing this matter with members of the State Department of Public Works, the committee discovered that this was primarily due to the fact that no transit program has yet been devised for this area which would require such rights of way. Also, there was a question whether state highway appropriations could be used for this purpose even in conjunction with rapid transit district funds without certain changes in the present law.
>
> "The committee submits that it is most obviously in the public interest that freeway planning, which includes very high per mile costs in securing rights of way through metropolitan areas, should be expanded to include consideration of accommodations for transit lines. This would eliminate spending public funds for the purchase of two separate rights of way when in many instances a relatively minor enlargement of one would accommodate both projects.
>
> "It is believed that, even though no specific rapid transit plan has yet been devised, it is foresighted planning by public agencies to consider this obvious future need in developing plans which will be of long duration."

Among its recommendations, that committee declared:

> "The committee recommends that arrangements be made with the Department of Public Works and the Highway Commission to consider inclusion of transit rights of

way in freeway highway plans within the San Francisco Metropolitan Bay Area and that appropriate legislation be passed to implement this where necessary with the objective of greatly reducing over-all costs and consequently saving great sums for the taxpayers."

The opinion and recommendation just set forth were valid in 1951 and they are equally valid and important in 1953.

* * *

CONCLUSIONS

This committee, having considered all aspects of the problem, taken into account the viewpoints of numerous authorities, and having analyzed the task at hand from every logical perspective, has reached the following conclusions:

1. There is an imperative need for creating an up-to-date mass rapid transit system to serve the San Francisco Bay Area.

2. Unless a workable master plan is devised as a prerequisite to the creation of such a system and unless mass rapid transit facilities are provided the San Francisco Bay Area, that area will suffer economically with resulting impairment of the economic strength of California generally.

3. The San Francisco Bay Area Rapid Transit Commission, through its recommendations, offers the logical solution to the rapid transit problems which desperately confront the people of this important area.

4. There is agreement on the part of the governing bodies of the nine counties concerned to participate on a matching-funds basis in the development of a master rapid transit plan for the San Francisco Bay Area. This farsighted willingness and gratifying expression of cooperative interest should prove the necessary incentive for positive, similarly-cooperative action by the California Legislature at this time.

5. Over the past years there have been much discussion, many meetings, countless agreements and disagreements but, not until now, has there been a detailed, specific and workable plan that has received the enthusiastic support of the people concerned.

6. Legislative action must be taken now. Without this necessary action, the San Francisco Bay Area Rapid Transit Commission cannot function, without it there will be no progress in developing rapid transit for the San Francisco Bay Area; without legislative relief the people of California cannot undertake to help themselves in a matter of paramount importance to the individual and the State.

RECOMMENDATIONS OF THE SENATE INTERIM COMMITTEE ON SAN FRANCISCO BAY AREA METROPOLITAN RAPID TRANSIT PROBLEMS

1. This Senate committee respectfully recommends and strongly urges favorable action by the California Legislature on Senate Bill No. 109. This bill calls for an appropriation of $400,000 to be used by the San Francisco Bay Area Rapid Transit Commission in making preliminary studies necessary for the development of a coordinated master rapid transit plan for the San Francisco Bay Area. These studies will include those necessary for the formulation of a preliminary over-all regional economic plan, including population estimates, as well as studies of the origin and destination of interurban vehicular and transit passengers.

The purpose of this recommended legislation is to implement the studies described immediately above which are covered by two of the four recommendations made by the San Francisco Bay Area Rapid Transit Commission. Although the amount to be appropriated is not contingent upon the contribution of an equivalent amount by the nine Bay Area counties concerned, these counties have pledged themselves to appropriate an additional $350,000 to enable the commission to carry out the remaining two recommendations. These latter recommendations involve the development of a preliminary regional transit proposal broken down into phases with estimates of timing as to each and the preparation of final preliminary plans, the determination of costs, and revenue estimates for the initial phase of construction.

2. This committee recommends, pending completion of plans and construction of a new and modernized mass transit system in the Bay Area, that all reasonable measures be taken to preserve and expand existing mass transit systems. It therefore opposes all such actions as the proposed discontinuance of the Key System "A" and "B" lines to Oakland.

3. This committee recommends creation of a Senate (or joint Legislative) Interim Committee to continue study of rapid transit specifically in terms of (a) financing necessary systems recommended as results of studies undertaken by the San Francisco Bay Area Rapid Transit Commission and any other governmental groups or agencies, and (b) originating and screening legislation designed to expedite and implement rapid transit in the San Francisco Bay Area.

APPENDIX "A"

CONCLUSIONS AND RECOMMENDATIONS OF THE SAN FRANCISCO BAY AREA RAPID TRANSIT COMMISSION

1. CONCLUSIONS

On the basis of its studies and investigations the commission has arrived at certain conclusions. They were arrived at after careful deliberation and after thorough consideration of the many factors that make the problem of transportation such a complex one, and one which affects the daily lives of a vast majority of our people. These conclusions are:

(1) That a satisfactory solution to the transit problem in the Bay Area cannot be reached by building highways and facilities for automobile transportation alone; that the solution can be reached only through evolving a satisfactory system of mass rapid transit developed on the premise of moving people—not moving cars.

(2) That there is an urgent need in certain portions of the Bay Area at present for a coordinated system of mass rapid transit, operating on its own rights-of-way—removed from conflict with vehicular traffic.

(3) That the system should be so planned that it would be capable of being expanded to include other areas not included in the original system as the population growth in those areas reach the point which will result in a travel volume sufficient to support the expansion.

(4) That to receive sufficient patronage, a rapid transit system must have inherent features that will permit it to compete on favorable terms with automobile transportation. Some of these features are:

(a) Short, elapsed travel time between departure point and destination;
(b) Modern, safe, comfortable equipment;
(c) Convenient transfer facilities;
(d) Frequent and convenient schedules;
(e) Adequate, convenient, and low-cost (preferably free) parking facilities at suburban stations.

(5) That the development of a coordinated, master rapid transit plan is a complicated project requiring the judgment, authoritative engineering advice, special knowledge, and technical skill of professional personnel especially qualified in work of that nature.

(6) That the staffs of the planning organizations of the various communities are, in general, not of sufficient size nor generally have they sufficient resources to develop a coordinated rapid transit plan for their area even if it appeared practicable to develop such a coordinated plan on a piecemeal basis. In a number of cases, it is understood that the staffs of these organizations are undermanned and that they are taxed to capacity to keep abreast of urgent, current planning. Accordingly, it does not appear practicable to undertake the development of such a plan on a piecemeal basis.

(7) That in view of the number of communities involved, practical consideration requires that if a master, coordinated rapid transit plan is to be developed for the Bay Area, the plan must be developed by one responsible central agency, and the suggestions and recommendations of the various areas and communities must be given due consideration in developing the plan.

(8) That in the development of a sound, master rapid transit plan, certain studies and

surveys must be made to produce the required factual data and information which are the essential bases for the plan.

(9) That the logical steps in developing such a plan are substantially as follows:

Step

1. **Studies necessary to formulate a preliminary over-all regional economic plan including population estimates.**
2. **Origin and destination studies of interurban vehicular and transit passengers.**
3. **Preliminary regional transit proposal broken down into phases with estimates of timing for each phase.**
4. **Final preliminary plans, construction costs, and revenue estimates for the initial phase of construction.**

(10) That tentative estimates of time and funds necessary to carry out the steps mentioned above are:

(a) Cost estimates: Step 1—$150,000; Step 2—$250,000; Step 3—$100,000; Step 4—$250,000.

(b) Time estimates: Steps 1 and 2, carried out concurrently, 18 months; Steps 3 and 4, following in sequence on Steps 1 and 2, 18 months.

(11) That the carrying out of this project would produce a coordinated, master rapid transit plan for the Bay Area including, for the initial phase of construction, final preliminary plans, construction costs, and estimated revenues.

(12) That the development of a master, coordinated rapid transit plan for the Bay Area is a project involving the joint interests and the joint responsibility of the State of California and of the nine counties composing the Bay Area, and that considerations that support this premise are:

(a) The transportation problem in the Bay Area affects the economic well being of a sizable portion of the territory and population of the State and the economy of the State as a whole.

(b) The project has close relationship to the efforts that have been made to solve the transportation problem through highway construction.

(c) The project is of such magnitude that there appears little likelihood that it could be carried out without support from the State.

(d) That an adequate system of transportation is essential to our national defense; the inadequacy of transportation in the Bay Area was definitely demonstrated during World War II and the temporary remedial measures which had to be resorted to involved costly outlays of manpower and material, both of which were at a high premium.

(e) That the problems of transportation and traffic congestion are increasing and the effect they are having on the safety, security, and well being of the population dictates that every reasonable means of arriving at an early solution should be utilized.

(13) That there is considerable evidence to indicate that the nine counties will agree to share with the State the cost of developing a master, coordinated rapid transit plan for the Bay Area; and, that if the cost of developing the plan is shared by the State, the commission can obtain commitments that the counties will give support to the development of the plan.* Supporting this conclusion are the facts that formal commitments, that they will support the development of the master rapid transit

---

* Since these conclusions and recommendations were made by the commission, all nine counties in the Bay Area have, by resolution of their boards of supervisors, pledged themselves to match funds to develop the plan.

plan, have been made by the Boards of Supervisors of the Counties of Sonoma, San Mateo, Contra Costa and Napa. A similar commitment has been made, informally, by the Board of Supervisors of Marin County. The Alameda County Rapid Transit Committee, whose one hundred members are appointed by the local governmental bodies, has endorsed the proposed program and has adopted a resolution to the effect that the committee will recommend to the County Board of Supervisors that Alameda County contribute its prorated share of the cost of carrying out the program.

(14) That if the program recommended by the commission and outlined later on in this report is undertaken, the commission should appoint certain committees from interested public and private groups to aid the commission in an advisory capacity in various phases of the program. Authority to appoint such committees is contained in the legislation which created the commission.

2. RECOMMENDATIONS

The commission therefore recommends:

(1) That there be made available to the commission the funds required to develop for the nine counties of the San Francisco Bay Area a master, coordinated rapid transit plan, and for carrying out the studies and surveys essential to the development of that plan.

(2) That the required funds be made available through an appropriation of four hundred thousand dollars ($400,000) by the State of California, and by the appropriation of a total of three hundred and fifty thousand dollars ($350,000) by the nine counties of the San Francisco Bay Area.

Closing Remarks

The increasing seriousness of traffic congestion and the increasing heavy toll that is being taken in lives, property damage, and in the adverse effect on the economy of the area, demand that prompt action be taken now to arrive at a definite solution to the problem of moving people safely and conveniently through adequate transportation facilities.

The conclusions have been arrived at after careful study and deliberation.

The recommendations of the commission were arrived at after thorough consideration of various proposals. They represent what the commission considers to be, by far, the most logical approach toward reaching a solution to the transit problems of the area.

(Signed)

MARVIN E. LEWIS
Chairman
A. HUBBARD MOFFITT, JR.
Vice Chairman

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APPENDIX "B"

RESOLUTION

(Opposing application of the Key System Transit Lines for authority to substitute bus service for trains on the "A" and "B" lines across the San Francisco-Oakland Bay Bridge adopted by the Senate Interim Committee on San Francisco Bay Area Metropolitan Rapid Transit Problems on December 9, 1952.)

WHEREAS, The Key System Transit Lines has applied to the California Public Utilities Commission for permission to abandon train service on the "A" and "B" lines in Oakland and on the San Francisco-Oakland Bay Bridge; and

WHEREAS, There is ever-increasing need for rapid transit facilities and services for the movement of people to and from the San Francisco and Oakland metropolitan centers; and

WHEREAS, This action by the Key System would reduce existing mass rapid transit facilities and services rather than meet the need for expanded facilities; and

WHEREAS, Abandonment of service on the "A" and "B" lines would represent a further reduction in the total number of trains scheduled on the San Francisco-Oakland-Transbay Rail Service which since 1939 has already been reduced by approximately 34 percent; and

WHEREAS, At the current rate of reduction of service by the Key System a move for eventual complete abandonment of transbay rail service is foreseeable; and

WHEREAS, This Senate interim committee and other interested bodies are currently developing ways and means of bringing about adequate rapid transit for the Bay Area; and

WHEREAS, Contemplated Bay Area rapid transit would be impaired by abandonment of San Francisco-Oakland Bay Bridge rail service which would be an important part of future travel programs; now, therefore, be it

Resolved, That the Senate interim committee on San Francisco Bay Area Metropolitan Rapid Transit Problems is of the opinion that abandonment of train service on "A" and "B" Key System Transit Lines at this time is not in the best interests of the public and since rapid transit between San Francisco and Oakland will be the subject of legislation to be introduced at the 1953 Session of the California Legislature, this committee respectfully urges the California Public Utilities Commission to withhold action on this matter until 90 days after conclusion of the 1953 Regular Session of the California Legislature; and, be it

Further resolved, That copies of this resolution be immediately forwarded to the California Public Utilities Commission and the Key System Transit Lines.

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printed in CALIFORNIA STATE PRINTING OFFICE

L-3896 3-53 2,500

REPORT OF THE

SENATE INTERIM COMMITTEE ON STATE AND LOCAL TAXATION

PART SIX

PROPERTY ASSESSMENTS AND EQUALIZATION IN CALIFORNIA

MEMBERS OF THE COMMITTEE

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HARRY L. PARKMAN	San Mateo
HAROLD J. POWERS	Modoc, Lassen, and Plumas
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Executive Secretary
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CALIFORNIA LEGISLATURE
1953 REGULAR SESSION

March, 1953

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LETTER OF TRANSMITTAL

March 23, 1953

President of the Senate
California Legislature
Sacramento, California

Dear Sir: Pursuant to Senate Resolution No. 190, read and adopted June 23, 1951, by the Senate of California at the 1951 Regular Session of the Legislature, and Assembly Concurrent Resolution No. 109, read and adopted by the Legislature on June 23, 1951, at the 1951 Regular Session, the Senate Interim Committee on State and Local Taxation herewith submits Part Six of its report. This part of the report is entitled ''Property Assessments and Equalization in California.''

The report begins with a discussion of the pattern of responsibility for equalization in California and a history of assessment equalization through Chapter 1466, Statutes of 1949. It then proceeds to analyze state assessment of public utility property and the equalization of locally determined property assessments as between the counties of the State.

The committee wishes to take this opportunity to thank the many state and local officials who cooperated with the staff in the preparation of this report. Special thanks are due the many real estate appraisers and brokers of the State who gave generously of their time to assist the committee in the large undertaking it assumed with respect to property valuations.

Respectfully submitted,

Ben Hulse, *Chairman*
Clarence C. Ward, *Vice Chairman*
Harry L. Parkman
Harold J. Powers
Hugh M. Burns

SENATE RESOLUTION No. 190

Relative to a Senate Committee on State and Local Taxation to make inquiry into every phase of taxation, creating the committee and defining its powers and duties

WHEREAS, The economy of the State of California has during the recent years gone through a revolutionary change, so that industry has assumed an increased importance in relation to agriculture, mining, and commerce; and

WHEREAS, This change has resulted in bringing into the State industries and properties of large value which have not previously been considered in our tax structure, and has created new governmental problems; and

WHEREAS, The increased population incident to this change in our economy has also created new governmental problems and made new demands upon both local and state governments; and

WHEREAS, The unprecedented growth of motor transportation and the change-over to the use of diesel fuel in motor transportation during the war period, together with the added population of our State and the concentration in industrial centers, has materially changed the requirements for the support of highways, streets, and bridges; and

WHEREAS, It appears that there may be large sums in the way of federal subsidies granted both to the state and local governments which will directly affect the revenue structure and will require careful examination to coordinate the disposition of these subsidies equitably into the entire revenue program of both state and local governments; and

WHEREAS, From the beginning of the State's history, the ad valorem tax has been and still is the fiscal mainstay of local government and has not been adjusted to meet the new conditions; and

WHEREAS, The administration of taxation by the State and by the local governments has not been modernized, in fact has not been materially changed to bring it into line with present or prospective needs; and

WHEREAS, The relative burden of our several taxes on the different classes of taxpayers and different classes of property has not been fully determined; and

WHEREAS, There are new classes of property and rights that have grown up in the State that are not subject to taxation; and

WHEREAS, The acquisition, holding and exchange of land in this State by the United States of America has many aspects and involves varied and varying relationships, including the bearing and effect thereof upon taxes levied or leviable by the State and by local governmental units within the State; and

WHEREAS, Neither the state nor local governments have available to their legislative bodies information concerning all the varied phases of this problem adequate to legislative consideration and action in the endeavor to find and effect a solution; and

WHEREAS, For many years the burdens of government have been increasing both for the state and local governments, including many fixed charges not controllable by administrative bodies but brought about in answer to the demand of the people expressed in continuing legislation or in constitutional requirements, it is imperative that an appraisal be made so that revenues may be made adequate to meet the demands of government, both local and state, and the burdens of taxation may be equitably distributed upon and among the several classes of property and of taxpayers; now, therefore, be it

Resolved by the Senate of the State of California, As follows:

1. The Senate Committee on State and Local Taxation is hereby created, authorized and directed to ascertain, study, and analyze all facts relating to or in any way bearing upon any of the subjects mentioned in the recitals of this resolution, particularly including but not limited to each phase of each and every tax (as herein defined) imposed in this State by any governmental agency (state, local, or federal); the incidence and burden of each such tax upon property, business and the taxpayer and the ability of the latter to pay, also the productivity of each such tax in relation to its cost of administration and in relation to the purposes for which imposed, each of which factors of each tax the committee shall consider, weigh, appraise and evaluate with each such factor of every other tax; the bearing and effect upon state and local taxes and expenditures of the acquisition, holding and exchange of lands in this State by the United States; the present and prospective revenue needs of each agency of government and the most equitable means of meeting each such need, taking into consideration all of the varied forms of tax now in use or that might be devised and put into use, and all existing sources of revenue and new sources of revenue that might be developed; administrative methods and procedures which now obtain in respect to each such tax and how they might be improved; present and prospective governmental expenditures of and the acquisition, management, use and disposition of properties by, each state or local governmental agency and the bearing thereof upon and relation to each and every form of tax now imposed or that might be devised and imposed; and the operation, effect, administration, enforcement, and needed revision of any and all laws in any way bearing upon or relating to the subjects of this resolution; and to report thereon to the Senate, including in the reports its recommendations for appropriate legislation.

2. The committee shall consist of five members of the Senate appointed by the Senate Committee on Rules. Vacancies occurring in the membership of the committee shall be filled by the appointing power.

3. The committee is authorized to act during this session of the Legislature, including any recess, and after final adjournment until the commencement of the

1953 Regular Session, with authority to file its final report not later than the fifteenth day after the constitutional recess. The time for filing the final report shall not be extended.

4. The committee and each subcommittee thereof is authorized to leave the State of California in the performance of its duties.

5. The committee and its members shall have and exercise all of the rights, duties and powers conferred upon investigating committees and their members by the provisions of the Joint Rules of the Senate and Assembly and of the Standing Rules of the Senate as they are adopted and amended from time to time at this session, which provisions are incorporated herein and made applicable to this committee and its members.

6. The committee has the following additional powers and duties:

(a) To select a chairman and a vice chairman from its membership.

(b) To contract with such agencies, public or private, as it deems necessary for the rendition and affording of such services, facilities, studies and reports to the committee as will best assist it to carry out the purposes for which it is created.

(c) To cooperate with and secure the cooperation of county, city, city and county, and other local law enforcement agencies and also civic and private organizations, in investigating any matter within the scope of this resolution, and to direct the sheriff of any county to serve subpenas, orders and other process issued by the committee.

(d) To report its findings and recommendations to the Legislature and to the people from time to time and at any time, not later than the last legislative day of the 1953 Regular Session.

(e) To do any and all other things necessary or convenient to enable it fully and adequately to exercise its powers, perform its duties, and accomplish the objects and purposes of this resolution.

7. ''Tax'' as used herein includes:

(a) Every kind of levy, collection, or charge made by the State Government, or by any city, county, city and county, political subdivisions, public district, or other state or local public agency, or by the Government of the United States;

(b) Whether imposed for general governmental purposes or for a special purpose;

(c) Whether a property, transfer, franchise, excise, privilege, or other form of tax;

(d) Whether for revenue or for the purpose of regulation, an assessment made in the apportionment of benefits conferred by improvements made, or charge for services or property rendered or delivered, or of any other nature or for any other purpose whatsoever;

(e) Whether called a tax, an assessment, a fee, a license fee, a registration fee, a rental rate, a sales price, or designated by any other name whatsoever.

8. The sum of one hundred thousand dollars ($100,000) or so much thereof as may be necessary, is hereby made available from the Contingent Fund of the Senate for the expenses of the committee and its members and for any charges, expenses or claims it may incur under this resolution, to be paid from the said contingent fund and disbursed, after certification by the chairman of the committee, upon warrants drawn by the State Controller upon the State Treasurer.

ASSEMBLY CONCURRENT RESOLUTION No. 109

Relative to investigation of tax equalization by interim investigating committees and State Board of Equalization.

Whereas, At the 1951 Regular Session of the Legislature thorough consideration was given to the subject of tax equalization as between various property taxing entities in this State both with respect to the levy of taxes therein on locally assessed and state-assessed property and with respect to subventions from the State; and

Whereas, It appears that additional factual information should be assembled in order that the Legislature may be fully advised when it acts on this subject; and

Whereas, It appears that each house of the Legislature will establish interim committees with full powers to study this problem; and

Whereas, The State Board of Equalization is required under law to proceed with surveys relating to this subject; now, therefore, be it

Resolved by the Assembly of the State of California, the Senate thereof concurring, That the Interim Committee on Taxation of each house of the Legislature is requested to study the matter of tax equalization and in particular the provisions of Chapter 1466 of the Statutes of 1949 and the amendments thereto proposed in Senate Bill No. 919 of the 1951 Regular Session, as well as all other matters pertaining thereto, and if possible be prepared to report to the Legislature at any special session called upon this subject in 1952; and be it further

Resolved, That the State Board of Equalization cooperate with these committees in this important work; and be it further

Resolved, That the Chief Clerk of the Assembly is directed to transmit a copy of this resolution to the chairman of each Interim Committee on Taxation created at this session of the Legislature and to the Chairman of the State Board of Equalization.

PROCEDURES, SUMMARY OF FINDINGS, AND RECOMMENDATIONS OF THE COMMITTEE

PROCEDURES

During and following the Second World War strong and increasing criticism has been directed against assessment practices in the State of California. This criticism has grown from a feeling on the part of many individuals that the practices of local assessors and the state assessment agency have not kept pace with the large and rapid changes in the economic atmosphere of the State. More particularly, it has been recognized that the unprecedented movement of population and industry to California, the inflated prices of the war and postwar periods, the rapid urbanization of many areas of the State, and a host of other fundamental changes in the economy of California have produced important changes in the level of market values of all types of property and that these have not been fully and uniformly reflected in the changes in assessed valuations. Although the problems for the local assessor and the state assessment agency that have been produced by these economic changes have been readily appreciated in discussions of this problem since the close of the war, the recognition of the importance of property assessments in the fiscal structure of the State and its local subdivisions has served to stimulate a feeling of dissatisfaction with the existing pattern of assessment equalization and to produce several attempts at legislation with a view to improving this pattern.

The first such attempt emphasized the relationship between the problem of assessment equalization on an intercounty basis and the system of allocating state aid to local school districts. This attempt, which appeared as Assembly Bill 2027 at the Regular Session of the Legislature of the Legislature in 1949, took the form of a suggested addition to the State Education Code to provide for an equalization of assessments for purposes of the allocation of state funds to school districts. It was apparent, however, that this measure would involve serious constitutional difficulties unless it were applied to a wider area than that of the allocation of school funds. This broader application was provided in the bill as finally passed and which became law as Chapter 1466 of the Statutes of 1949.

Although the 1949 equalization law did accomplish the breadth of application made necessary by the fact that assessments serve both as the base of the local property tax and as the basis for the allocation of state funds, it soon became obvious that the implementation of the provisions of the law would involve many taxing jurisdictions of the State in severe and immediate fiscal difficulties. As a result, the effective date of the law was postponed. This was accomplished by Senate Bill 919, passed at the 1951 Regular Session of the Legislature, which amended Section 28 of Chapter 1466, Statutes of 1949, and provided that Sections 1 to 27 would operate initially as to assessments made as of the first Monday in March, 1953, and to taxes levied and state funds allocated on the basis thereof, rather than to assessments made as of the first Monday in March, 1951.

It was also recognized that one of the most severe limitations in all of the discussions of the equalization problem since the war has been the absence of any clear factual evidence that would indicate the magnitude of the problem or the areas of particular difficulty. As a result, the Senate Interim Committee on State and Local Taxation was requested by Assembly Concurrent Resolution 109, passed at the Regular Session in 1951, "to study the matter of tax equalization and in particular the provisions of Chapter 1466 of the Statutes of 1949 and the amendments thereto proposed in Senate Bill 919 of the 1951 Regular Session, as well as all other matters pertaining thereto, and if possible be prepared to report to the Legislature at any special session called upon this subject in 1952." To this end, the Senate Interim Committee on State and Local Taxation has attempted to conduct a factual survey of assessments and equalization practices throughout the State and to provide an estimate of the probable effect of the equalization procedures which were contemplated pursuant to the provisions of Chapter 1466 of the Statutes of 1949.

The study conducted by the staff of the Senate Interim Committee on State and Local Taxation is presented herewith. It is concerned with both state-assessed property and locally assessed property. Within the limits of time and funds that were available for this study, however, it was impossible to conduct the intensive kind of inquiry into the valuation of state assessed taxpayers ("public utility" enterprises) that would be required if definite ratios of assessed to market value of utility properties were to be determined. As a result, the emphasis in this phase of the study has been placed upon assessment techniques used by the Valuation Division of the State Board of Equalization in the assessment of public utility enterprises rather than upon the determination of actual market values. The staff of this committee has been greatly assisted in this study by the cooperation shown by the Valuation Division of the State Board of Equalization.

In its analysis of the valuation of locally assessed property ("common" property) the staff of the Senate Interim Committee on State and Local Taxation made use of the sample survey conducted by the Division of Assessment Standards of the State Board of Equalization in 1951 along with certain factual data that were used in conjunction with that survey. It must, however, be clearly understood that at no time did this committee or its staff have access to information collected in confidence from taxpayers of the State by the Division of Assessment Standards of the State Board of Equalization. In the study of common property assessments, it was impossible to analyze the techniques employed by 58 county assessors in any detail.

In part, of course, this analysis was made unnecessary by studies made by the State Board of Equalization under the provisions of Section 3693 of the Political Code, as added by Chapter 1523 of the Statutes of 1947. Instead, the study of common property assessments by the committee staff was concerned with the determination of the assessment ratios themselves with a view to describing the status of intercounty equalization in the State of California.

Even though the problem of developing a state-wide sample of parcels of common property was solved by the use of the same sample that had been developed by the Assessment Standards Division of the State Board of Equalization in 1951, the committee was confronted with a second problem of equally large proportions. This problem was, given a state-wide sample of property parcels, how to work out a method whereby each parcel could be reliably and independently appraised. Limits imposed by the funds available precluded the employment of a large number of competent appraisers on a salary or fee basis. Thus the committee turned to the California Real Estate Association for assistance from the qualified appraisers and brokers who were members thereof. Their generous response, and their cooperation and active participation in this phase of the study merits the special thanks of the committee and its research staff.

The first step in the organization of the appraisal phase of this study was the establishment of a State-wide Steering Committee on the Appraisal Survey. This steering committee was composed of the following members:

MEMBERS OF THE STATE-WIDE STEERING COMMITTEE ON APPRAISAL SURVEY

Charles B. Shattuck, *Chairman, Los Angeles*
A. Ormsby Donogh, Jr., *Vice Chairman, Berkeley*
H. R. Hudsen, *Vice Chairman, Los Angeles*
R. D. Burrows, *Los Angeles*
Leonard R. Cardoza, *Albany*
John Cotton, *San Diego*
F. J. Dietrich, Jr., *Stockton*
C. J. Duncan. *Oakland*
J. C. Hoffman, *Long Beach*
F. Burt Hulting, *San Francisco*
Earl C. Smart, *San Jose*
Wynne A. Savage, *San Bernardino*

The executive secretary of the Senate Interim Committee on State and Local Taxation and the research associate in charge of this study for the Senate committee represented the Senate committee at all meetings of the steering committee.

It was then decided to establish an Appraisal Advisory Committee composed of real estate brokers and appraisers throughout the State to undertake the actual appraisal work. Thus the assistance of some 560 qualified brokers and appraisers was enlisted and this group constituted an advisory committee to the Senate Interim Committee on State and Local Taxation. Parcels of property included in the sample used were then assigned to the members of this committee as well as to steering committee members for estimates of the value thereof.

The members of the Appraisal Advisory Committee are listed below.

MEMBERS OF THE APPRAISAL ADVISORY COMMITTEE

Name	*City*
William W. Abelmann	Glendale
Walter F. Ackemann	Millbrae
Earl E. Adams	Grass Valley
Martha Scott Adams	Oakland
W. P. Adams	San Diego
Edwin S. Agnew	Alameda
Ben G. Allen	Palo Alto
Mearl Allen	Los Angeles
Gerald L. Alter	Torrance
John J. Amaral	Pleasanton
Edward P. Ames	Palo Alto
E. O. Anders	South Pasadena
Charles E. Anderson	Ukiah
Charles W. Andrews	Menlo Park
Harry L. Andrews, Jr.	Fresno
Marc Andrews	Inglewood
C. H. Antrim	Fresno
Eleanor A. Arndt	San Bruno
H. K. Arnold	Oxnard
Charles Ashford	Santa Monica
David K. Atkinson	San Jose
H. Kent Atwater	Burlingame
Charles Aubrey	Riverside
William C. Auld	Ukiah
E. E. Auman	Laguna Beach
Edward C. Backman	Turlock
Frances Backs	Anaheim
Neal J. Baggett	Culver City
Leland A. Baker	Bakersfield
William C. Baldwin	Carlsbad
Reginald Balmer	Los Angeles
Herbert Baltz	Salinas
H. B. Bank	Burbank
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All members of both the Steering Committee and the Appraisal Advisory Committee served without remuneration. The Senate Interim Committee on State and Local Taxation wishes to commend these members of the two committees for this public-spiritedness and civic-mindedness in assisting in this work.

SUMMARY OF FINDINGS

The term "assessment equalization" always implies a *comparison* of assessments. The assessments subject to comparison may, of course, be the individual assessments within a given taxing jurisdiction, some measure of the level of assessments within one jurisdiction as compared with the level of assessments within another jurisdiction, or the assessments determined by the state assessment agency as compared with those determined by the local assessment officials. By common consent, the equalization comparison is always expressed in terms of the ratio (usually in the form of a percentage) of assessed value to market value, or whatever other concept of taxable value is involved in the legal definition. As a result, before the equalization comparisons may be made, it is necessary to have a clear idea of the "market" or "true" values of the properties for which the assessment ratios are to be computed. In the study conducted by the Senate Interim Committee on State and Local Taxation, the problems of assessment equalization were thus analyzed as two separate valuation problems before any implications of a comparative nature were drawn. This analytical distinction involved, on the one hand, the public utility enterprises as the owners of property subject to state assessment and, on the other hand, the common property subject to local assessment. These two areas of analysis are treated separately in this summary of the findings of the study.

Public Utility Assessment

As currently conducted by the Valuation Division of the State Board of Equalization, the valuation of public utility property appears to be satisfactorily designed and executed. It may generally be concluded that the technique of determining a value for the entire operating property of a public utility enterprise and then allocating this "unit value" to the various taxing jurisdictions is entirely appropriate and conforms to accepted valuation theory. Indeed, it appears that in many respects the Valuation Division does not go far enough in its application of the so-called "unit rule" of valuation. There is, for example, a tendency for the rule to be violated through the use of such evidences of value as historical cost new less depreciation and reproduction cost new less depreciation, and again in the peculiar treatment given to the railway land that is not part of the right of way, and all of the land of other public utility enterprises as well. This criticism of the performance of the Valuation Division of the State Board of Equalization cannot, unfortunately, be stated more specifically; nor can the effects of the techniques used by the division be completely evaluated, for it is not possible to know how much weight was given these elements in the valuation process. The limited usefulness of these cost evidences of value for purposes of establishing the unit value of the operating system of a public utility enterprise has been clearly established in the professional literature, however, and the extent to which the Valuation Division makes use of these elements is a measure of the violation of the unit rule of valuation. The treatment given the land items mentioned above is part of the general allocation formula by which the unit value of the enterprise as a whole is spread over the parts of the utility system that lie in the various taxing jurisdictions, and as such is discussed below.

In the process of this study there have been many indications that the so-called "unit rule" of valuation, the general theory of which is accepted by the Valuation Division of the State Board of Equalization, is not widely understood by all who are interested in the problem of assessment equalization in California, in spite of the fact that such understanding is vital to an appreciation of the tasks which must be performed both by the local assessor and by the state assessment agency. It is emphasized, for example, at various points in this report that it is impossible to determine the ratio of assessed value to market value of the public utility property in a given taxing jurisdiction by attempting to determine the costs of installation of that portion of the utility system. Rather it is necessary first to determine the market value of the entire system and then, by a process of allocation, derive a supportable "market value" for the individual items of property that compose the system. This does, indeed, make it extremely difficult for any local official to check the assessment ratios on this type of property, for the kind of information that is necessary for the unit valuation and particularly for the allocation of the unit value is typically not available to these local officials. Nevertheless, if any sense is to be made out of the assessment of public utility property and out of the problem of equalizing public utility assessments with the assessment placed upon common property, this point is an essential one.

Although the general approach to the valuation of public utility property used by the Valuation Division of the State Board of Equalization is thus supported by this committee as the "correct" approach, the specific steps by which the valuation is accomplished are not subject to blanket approval. In the first place, it is felt that the processes of valuation used by the Valuation Division are often extremely subjective in character, so that the results of the processes are not entirely available for examination and review. It was recognized by this committee that the valuation of public utility property is, of necessity, a highly subjective thing. But this recognition serves also to indicate the desirability of confining the subjective elements as narrowly as possible. It is felt by this committee that the operations of the Valuation Division are often needlessly subjective and that this carries with it the danger of a non-uniform application of the valuation principles to the various companies in the public utility group and to the various areas of the State. The points at which these subjective elements were felt to be stronger than necessary were (1) the final step in the valuation process by which the various evidences of value are collected and molded into a single unit value figure, and (2) the step by which the unit value is allocated to the many taxing jurisdictions within the State.

One other important danger area was recognized by this committee in the present procedures of the Valuation Division of the State Board of Equalization. This is the area that involves the intrastate allocation of the unit value of a public utility enterprise. At the present time there is considerable evidence that the allocation ''formula'' is not applied with the uniformity required to establish *intercounty* equalization of assessments. It is clear that any debate relative to the comparison of assessment ratios as between public utilities and common property must be conducted in terms of the *unit value* itself, but it is also clear that any debate relative to the intercounty comparison must take account of the techniques used by the State Board of Equalization to allocate this unit value to the various taxing jurisdictions in the State. The strong impression was gained that this represents a further important consideration that is often neglected in equalization discussions, despite the fact that this point is crucial to any final judgment of the effectiveness of the equalization program. Although it was not possible to explore the allocation process in minute detail for purposes of this study, it is felt that there is abundant scope for improvements in the techniques used by the State Board of Equalization in order that a uniformly appropriate spread of public utility value throughout the relative jurisdictions may finally be obtained.

With the time and resources available for this study it was impossible for the Senate Interim Committee on State and Local Taxation independently to determine in any final way the ratios of assessed value to market value for the public utility enterprises selected for detailed analysis. The quantitative studies that were made, however, and the intensive study of the methods used by the Valuation Division of the State Board of Equalization tend to support the contention of the State Board of Equalization that public utility enterprises in the State are assessed at something close to 50 percent of the market value of such enterprises. This, to repeat, is not to say that any one parcel of public utility property or any specific public utility improvement is assessed at a 50 percent ratio, for this involves the troublesome problem of the allocation of the unit value to these items of property. *The present evaluation relates only to the comparison of the assessed value and the market value of the entire system of any given public utility and not to any portion thereof.* While there are strong indications that the system of allocating the unit value leaves a good deal to be desired, a final evaluation of this system is contingent upon a much more detailed analysis than was possible in the present study.

Common Property Assessment

Although the findings of the present study with respect to the pattern of local assessments are severely limited by the insufficient and otherwise unsatisfactory sample which it was possible to use for purposes of the analysis, all of the available evidence appears to point to the conclusion that the state-wide ratio of assessed value to market value lies somewhere between 26 percent and 30 percent. The computations of the Division of Assessment Standards of the State Board of Equalization in the survey conducted by that division in 1951 show a state-wide ratio of 28 percent, although the finally published figures showed a state-wide ratio of 40 percent. The sampling, appraisal, and computations of the Senate Interim Committee on State and Local Taxation in the survey conducted in 1952 show the ratio to be 27.3 percent, although the interpretation of the appraisal data is quite different than that made by the Division of Assessment Standards as part of its study in 1951.

Even more important, however, is the conclusion that the assessment levels are markedly different in the various counties in the State. The highest county ratio appears to be above 40 percent, while the lowest county ratio appears to be below 13 percent. The dispersion of the county ratios around the state-wide ratio was found to be somewhat wider by this committee than that calculated by the Division of Assessment Standards in 1951, a difference attributable to the method of interpreting the individual assessment ratios rather than to markedly different appraisals on particular items of property.

Although no careful study was made by this committee of the status of intracounty equalization, it was possible to make use of the appraisal material collected for other purposes in order to analyze, in a preliminary and inconclusive way, the pattern of assessments *within* the counties of the State. The evidence is not such as to permit a clear, quantitative statement of the degree of disparity between the individual assessment ratios, but it is possible to conclude that this disparity is great enough in most counties to present a severe problem to the administration of the property tax and to the construction of an equalization procedure designed to achieve *inter*county uniformity. It is recognized by this committee that many counties are now in the process of conducting extensive reappraisal programs and that the completion of these programs may be expected to improve the pattern of assessments within the counties. The fact remains, however, that such uniformity does not now exist and that a constant vigilance rather than an occasional reappraisal program is required to assure the kind of intracounty equalization that is essential to the proper functioning of the property tax as the basis of the fiscal operations of local governments in California.

RECOMMENDATIONS

Although it is not possible, from the study which the Senate Interim Committee on State and Local Taxation conducted, to set forth a series of recommendations that may be assumed to lead to the ultimate solution of the problems of assessment equalization in the State of California, certain suggestions which may be made for the improvement of equalization procedures do stand out clearly. If the allocation of state funds is to continue to be based upon the level of assessments in giving taxing jurisdictions, and if the findings of this committee may be assumed to approximate the true conditions of assessment equalization in the State, it is clear that there is a *need* for both intercounty equalization and equalization as between locally assessed property and state-assessed property. Furthermore, the events of the period from 1935 to the present indicate clearly that the equalization machinery constructed by the Riley-Stewart Amendment and changed in only minor respects in the intervening years is inadequate to accomplish the tasks which it must accomplish if the property tax and other fiscal operations based upon assessed valuations are to function smoothly and effectively. The attractions of "competitive underassessment" are too great, with the present system of the allocation of state funds, to permit the expectation that the counties of the State will "set their own houses in order," and the deterrents to a strictly administrative solution by the State Board of Equalization are too great to permit a sole reliance upon the equalization provisions contained in the California Constitution and in the Revenue and Taxation Code before the controversial equalization law of 1949. It is, of course, desirable to solve as much of the equalization problem as possible at the local level, without the burdens of equalization orders and other mandatory controls. As a result, it is the feeling of this committee that there is much that can be accomplished by an improvement of assessment practices at the local level and an extension of the instructional and advisory services provided the local assessors by the Division of Assessment Standards of the State Board of Equalization. Nevertheless, it is clear that the final solution to the problems of assessment equalization are not contained in the possibilities of improving assessment practices but in the techniques which are employed at the state level for the issuance of mandatory equalization orders on a broad intercounty basis and on the basis of the levels of common property assessments and public utility assessments. It is the recommendation of this committee, however, that whatever legislative steps are taken to improve the equalization machinery should be carefully integrated with attempts to improve the assessment machinery used by local assessors and by the state assessment agency.

It has been clear to the Senate Interim Committee on State and Local Taxation in this study that the most severe restriction to the derivation of a satisfactory equalization law has been the lack of factual information as to the prevailing assessment practices and the prevailing status of assessment equalization. The study conducted by this committee has attempted to fill this gap, but the time and financial resources available to the committee have been such as to prevent a completely satisfactory evaluation of these matters. There is still, in other words, a need for an accumulation of factual evidence that will be useful in framing sound equalization policy, so that a strong recommendation is here made for the continuation and extension of the present factual investigation of assessment patterns throughout the State.

In view of these considerations, the recommendations of the Senate Interim Committee on State and Local Taxation are set forth under three headings. The first of these is concerned with those steps which may be taken to improve assessment practices both at the local level and at the state level. The second includes some tentative suggestions for the improvement of the equalization machinery itself. The third is concerned with the need for a further factual inquiry before final action is taken upon the matter of equalization in the State of California.

Improvement of Assessment Practices

1. It is recommended that the Valuation Division of the State Board of Equalization give serious consideration to the improvement of the techniques of intrastate allocation of unit value and to the suggestions made in the body of this report for the improvement of the valuation procedures themselves. These improvements should include the implementation of a formula for intrastate allocation that is capable of uniform application throughout the State. They should also include a clearer recognition of the logic behind the unit rule of valuation and a more objective determination of the final unit value figures. In addition, it is suggested that the Valuation Division continue its work in the improvement of the capitalized income approach to unit value and in the more careful construction of capitalization rates for purposes of these calculations.

2. It is recommended that the local assessors of the State of California conduct their regular assessment programs in such a way as to assure a uniformity of assessments within each county. The reappraisal programs currently being conducted by many counties of the State should be extended and completed, and consideration should be given by county officials to the possibility of continuing these reappraisal programs on a regular basis. Those counties that have not yet undertaken such reappraisal programs are urged to do so as soon as possible so that any intercounty equalization program may be instituted with the knowledge that intracounty equalization is approaching accomplishment throughout the State.

3. The Division of Assessment Standards of the State Board of Equalization is urged to continue and extend its program of instruction and advice to local assessors of the State. In this work it is recommended that the Division of Assessment Standards give more careful consideration than it appears to have done in the past to informing local assessors of the meaning of the statutory definitions of taxable value and of the kinds of evidence that are acceptable in the determination of this value. The use of replacement cost evidence should by no means be abandoned, but it should be made clear that other evidences such as sales of given parcels, sales of comparable parcels, income data, and stock and debt data are also legitimate evidences of market value.

There is considerable evidence to the effect that many of the local assessors have come to consider replacement cost and market value as synonymous terms. This has naturally led to an overemphasis of replacement costs as an evidence of market value and has resulted in some distortion of the market value figures as between counties and as between local assessments and state assessments.

Improvement of the Equalization Machinery

1. It is recommended that any permanent equalization machinery include provision for an annual survey of the taxable property in each county in the State with a view of determining the ratio of assessed value to market value in each county and for the State as a whole. These surveys should be conducted in such a way as to conform to accepted statistical procedures of sampling and interpretation. Such annual surveys should include at least one-half of 1 percent of the number of parcels in each county, with all of the major types of property being represented in the sample. It is absolutely essential that the annual sampling operations conform to the requirements of the principle of random stratified sampling and that the agency to which these tasks are assigned set up a system of sampling controls that will assure this result. It is essential, too, that the interpretation of the results of the annual sampling operation be carefully constructed to conform to statistical requirements.

2. It is recommended that the Division of Assessment Standards of the State Board of Equalization take steps to assure that the assessment records of each county are maintained in such a form as to facilitate this sampling operation and to simplify the mechanical tasks of sampling to the maximum possible extent.

3. It is recommended that these annual surveys be conducted in such a way as to indicate the status of intracounty equalization, and that the data collected be interpreted and made available to the county officials so that any necessary action may be taken by these officials prior to the issuance of mandatory equalization orders designed to raise or lower the entire local assessment roll. It is, therefore, also recommended that as much of the information obtained through such surveys be made available to the county officials as is consistent with the standards of confidence under which information is obtained from individual taxpayers.

4. It should be recognized that any equalization law that attempts to impose sudden and large assessment changes on individual counties is likely to create severe fiscal burdens for those counties. It is desirable to construct the law in such a way as to permit the improvement of intercounty equalization and an improvement in the relationship between common property assessments and public utility assessments without disturbing the programs of intracounty equalization which should be urged upon the counties of the State, and without imposing additional burdens upon those counties that have attempted to make local assessments more uniform. It is consequently recommended that an equalization law be devised that will permit the simultaneous improvement of intercounty equalization, intracounty equalization, and equalization as between common property and public utility property.

The Need for Additional Factual Information

It is strongly recommended that a final decision on equalization legislation be delayed until it is possible to accumulate additional evidence relative to the status of assessment equalization throughout the State. In particular, it is suggested that additional studies be made of common property assessments in each county of the State as described earlier in these recommendations. The appraisal work necessary to the completion of this study should be assigned to the Division of Assessment Standards of the State Board of Equalization but the selection of the properties to be included in the sample and the statistical interpretation of the appraisal data should be reviewed by an independent committee in no way associated with assessing officers. The analysis of public utility assessments should be extended and an attempt made to carry out a complete valuation of selected public utility enterprises.

In other respects, the additional factual investigation recommended here should be designed as suggested at the close of Chapter II of the present report. These suggestions are:

I. An enlargement of the *scope* of the study in the following directions:
   A. A study of the economic effects and the purposes of property taxation of public utility enterprises as related to the economic effects and the purposes of the regulation of public utility enterprises;
   B. A study of the pattern of allocation of state funds for various purposes in an attempt to discover whether the relationship between such allocations and assessed valuations is desirable or whether it is a costly and dispensable ''luxury''; and
   C. A study of the status of *intracounty* equalization throughout the State.

II. An improvement in the *methods* used in the present report, the improvements to be in the following directions:
   A. Assessment of public utility property:
      1. A complete valuation of several representative public utility enterprises, with particular emphasis upon land appraisals;
      2. A more *extensive* investigation of the technique of the Valuation Division of the State Board of Equalization, in terms of an analysis of other categories of utility enterprises; and
      3. A more *intensive* investigation of the techniques of the Valuation Division, with particular reference to the following:
         (a) The intrastate allocation process as applied to gas and electric companies and to railroad companies;

  - (b) The computation of the capitalization rate in the determination of the earnings evidence of value;
  - (c) The computation of the factor for income taxes in the determination of the earnings evidence of value; and
  - (d) The calculation and use of cost data.

B. Assessment of common property:

1. A larger and more representative sample of the locally assessed property in the State, designed to describe both intracounty equalization and intercounty equalization;
2. An analysis of the *techniques* of valuation used by the local assessors of the 58 counties, similar to the analysis of the techniques of the Valuation Division of the State Board of Equalization included in Division III of the present report;
3. A specific analysis of the valuation of large industrial and commercial enterprises, designed to yield a comparison of the techniques and the results of the local assessor with respect to this type of property and the techniques and results of the Valuation Division of the State Board of Equalization with respect to public utility property; and
4. A study of the ratio of assessed to market value of personal property.

REPORT OF THE COMMITTEE RESEARCH STAFF

PROPERTY ASSESSMENTS AND EQUALIZATION IN CALIFORNIA

Prepared by
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LETTER OF TRANSMITTAL

March 23, 1953

HONORABLE BEN HULSE, *Chairman*
and Members of the Senate Interim Committee
on State and Local Taxation
State Capitol, Sacramento, California

HONORABLE GENTLEMEN: In accordance with the instructions of the committee pursuant to Assembly Concurrent Resolution No. 109, read and adopted June 23, 1951, by the California Legislature at the 1951 Regular Session, the research staff herewith submits Part Six of the committee report entitled "Property Assessments and Equalization in California."

By way of introduction and background the report first deals with the legal pattern of equalization within the State; presents a history of equalization through Chapter 1466, Statutes of 1949, and subsequent developments; and presents a comparison of assessment equalization in California with equalization in other states.

The report then undertakes to examine the problems of utility valuation in general and state assessment of utility property in California in particular. Following this analysis, the intercounty equalization of locally-assessed property is discussed. The report concludes with some observations relating to the problems of intercounty and intracounty assessment equalization which must be solved before real assessment equalization can be achieved in California.

The research staff wishes to acknowledge the generous assistance extended by the Valuation Division and the Division of Assessment Standards of the State Board of Equalization. A large debt is owed to the many real estate brokers and appraisers who as public-spirited citizens contributed their services to assist the committee in the appraisal aspects of the study. We further wish to express appreciation for the cooperation extended by the county assessors of the State. Special thanks are due the California Real Estate Association and the representatives of the major utility companies studied in this report. The assistance of the Legislative Counsel is also gratefully acknowledged.

Every effort has been made to document the report carefully and to acknowledge all sources of information. Any errors or omissions of acknowledgment are unintentional. The staff accepts full responsibility for them and stands ready to correct them.

The staff also wishes to thank the members of the committee for their assistance and counsel, and for their critical review of the content of the report.

Respectfully submitted,

WILLIAM K. SCHMELZLE
Executive Secretary

FOREWORD

Assembly Bill No. 2027 which became law as Chapter 1466, Statutes of 1949, aroused considerable controversy among assessing officials, legislators, and taxpayers shortly after its enactment. As a result of this opposition to the law as passed, Senate Bill No. 919, which became law as Chapter 1554, Statutes of 1951, suspended the operations of Chapter 1466 for a two-year period. At the same session (1951 Regular Session) Assembly Concurrent Resolution No. 109 was passed requesting the Assembly and Senate Interim Committees on Taxation "to study the matter of tax equalization, and in particular the provisions of Chapter 1466 of the Statutes of 1949 and the amendments thereto proposed in Senate Bill No. 919 of the 1951 Regular Session, as well as all other matters pertaining thereto, and if possible be prepared to report to the Legislature at any special session called upon this subject in 1952." The following study constitutes the report of the Senate Interim Committee on State and Local Taxation pursuant to the request contained in this resolution.

For a study of the magnitude contemplated by the language of the resolution, the limitations of time and funds were especially severe. A much more intensive analysis of public utility assessments by the State than of common property assessments by county assessors is presented largely because the available information was centralized in one state assessing agency in contrast to 58 local assessing agencies. Thus the analysis of state assessments deals to a greater extent with the actual assessment process than does the examination of local assessments. The discussion of the latter is largely confined to the problems of intercounty equalization rather than those relating to local assessment procedure and intracounty equalization.

Chapters I and II of the report were prepared by Leslie E. Carbert while Chapter III was written by Malcolm M. Davisson. Mr. Carbert prepared and is the author of Divisions II and III of the report dealing with public utility valuation and assessment. The materials in the concluding section (Division IV) on local assessments were prepared by Leslie E. Carbert and William K. Schmelzle. Miss Anne Reimbold supervised the many tasks of editing, statistical presentation, and documentation essential to the preparation of the report for publication.

DIVISION I

INTRODUCTION

CHAPTER I

A STATEMENT OF THE PROBLEMS

THE PATTERN OF RESPONSIBILITY FOR EQUALIZATION

In California, responsibility for the equalization of assessments for county property tax purposes rests with two groups of authorities. The first of these is the board of supervisors of each county, and the second is the State Board of Equalization. The nature of the responsibility and the specific administrative duties of these two equalization authorities is described in several sections of the California Constitution and the California Revenue and Taxation Code. In view of the fact that these constitutional and code provisions establish the legal framework of the problems discussed in this report, the substantive content of these sections is reproduced here at some length.[1]

The basic pattern of responsibility for equalization is established in two sections of Article XIII of the California Constitution. Section 9 of Article XIII deals, in effect, with all property subject to assessment by the county assessors, and describes the basic responsibility of the county boards of supervisors and the State Board of Equalization in terms of both intracounty equalization and intercounty equalization. The relevant portion of this Section is as follows:

> ''A State Board of Equalization, consisting of one member from each congressional district in this State, as the same existed in 1879, shall be elected by the qualified electors of their respective districts, at the general election to be held in the year 1886, and at each gubernatorial election thereafter, whose term of office shall be for four years; whose duty it shall be to equalize the valuation of the taxable property in the several counties of the State for the purposes of taxation. The Controller of State shall be ex officio a member of the board. The boards of supervisors of the several counties of the State shall constitute boards of equalization for their respective counties, whose duty it shall be to equalize the valuation of the taxable property in the county for the purpose of taxation; provided, such state and county boards of equalization are hereby authorized and empowered, under such rules of notice as the county boards may prescribe as to county assessments, and under such rules of notice as the state board may prescribe as to the action of the state board, to increase or lower the entire assessment roll, or any assessment contained therein, so as to equalize the assessment of the property contained in said roll; provided, that no board of equalization shall raise any mortgage, deed of trust, contract, or other obligation by which a debt is secured, money, or solvent credits, above its face value. * * *''

This constitutional mandate appears, on the surface, to contain a certain ambiguity as to the precise areas of responsibility of the State Board of Equalization as compared with those of the county boards of supervisors sitting as county boards of equalization. However, the courts have consistently interpreted this Section of the California Constitution to mean that the State Board of Equalization may increase or lower the entire local assessment roll but not the individual assessments thereon, while the county boards of equalization may increase or lower individual assessments on the local roll but not the entire roll.[2]

The remaining authority for equalization is allocated by the California Constitution to the State Board of Equalization as part of Section 14 of Article XIII. Earlier portions of this Section describe several types of public utility property that must be *assessed* by the State Board of Equalization, and, since the assessment agency and the equalization agency are the same thing, it is difficult to distinguish between the assessment provisions and the equalization provisions. But equalization implications are clearly contained in the following sentence:

> ''All property so assessed by said board shall be subject to taxation to the same extent and in the same manner as other property.''

In the sections which implement these Constitutional provisions the Revenue and Taxation Code is, of course, more explicit. Section 1603 of the Revenue and Taxation Code deals with locally assessed property as follows:

> ''Annually, on the first Monday in July, the board of supervisors will meet as the county board of equalization to equalize the assessment of property on the local roll. It shall continue in session for that purpose, from time to time, until the business of equalization is disposed of, but not later than the third Monday in July.''

Sections 1605 and 1606 of the Revenue and Taxation Code more clearly establish the limits of the authority of the county boards of equalization. Section 1605 gives the county boards of equalization permission to equalize the assessments of individual properties:

> ''After giving notice as prescribed by its rules, the county board may increase or lower any assessment on the local roll in order to equalize the assessment of property on the local roll.''

Section 1606 gives legislative sanction to one of the elements in the several court decisions mentioned above with the simple statement that "the county board shall neither raise nor lower the entire local roll."

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[1] A comprehensive analysis of assessment equalization is presented in another report of the Senate Interim Committee on State and Local Taxation. See *Report of the Senate Interim Committee on State and Local Taxation*, Part Four, "A Legal History of Property Taxation in California: Division III, The Assessment and Equalization of Property," 1953.

[2] *Wells Fargo and Co.* v. *State Board of Equalization*, 56 Cal. 194; *People* v. *Sacramento County*, 59 Cal. 321; *People* v. *Dunn*, 59 Cal. 328; *San Francisco and N. P. R. R.* v. *State Board of Equalization*, 60 Cal. 12; *Schroeder* v. *Grady*, 66 Cal. 212; *Baldwin* v. *Ellis*, 68 Cal. 495.

The Revenue and Taxation Code includes similar prescriptions for the equalization activities of the State Board of Equalization. In this case, however, the relevant sections of the Code are not as easily extracted. The Statutes of 1949 added several sections to the Revenue and Taxation Code in an attempt to provide a definite legislative mandate for the equalization procedures of the State Board of Equalization. These sections of the Code were to be operative on September 2, 1950, and were designed to apply to the assessments made as of the first Monday in March, 1951. The Statutes of 1951, however, delayed the effective date of these sections of the code until the first Monday in March, 1953. With the exception of the suspended sections, the only section in the Revenue and Taxation Code that adds anything of substance to the general requirements of the California Constitution is Section 1841 (formerly numbered Section 1882.5).

> "The board, in order to facilitate the equalization of property values between the several counties, may equalize each class of property on the local roll of each county so that the assessment of each class of property in the county is proportionate to the assessment of every other class of property.
>
> "For the purpose of this section, the classes of property are defined as:
>
> (a) All land within the county.
> (b) All improvements within the county.
> (c) All tangible personal property within the county."

This section of the Revenue and Taxation Code obviously has the effect of permitting the State Board of Equalization to concern itself with a somewhat narrower set of distinctions than if it were restricted to increasing or lowering the *entire* assessment on the local rolls. The Board may, according to Section 1841, increase or lower all land assessments on the roll or all improvement assessments on the roll or all tangible personal property assessments on the roll. It may not, however, seek to discriminate in its equalization orders between individual assessments within any of these property categories.

The sections of the Revenue and Taxation Code which are currently inoperative as a result of the Statutes of 1951 constitute the heart of the present equalization problem. They represent one attempt to provide a more rigorous equalization formula than had existed prior to 1949 in either the Revenue and Taxation Code or the California Constitution. Whether these sections will remain in the code, whether they will be deleted in favor of some other formula, or whether they will be deleted without substitute, depends, of course, upon the action which may be taken in the legislative session of 1953. Because of the importance of these sections from the point of view of the present equalization problems in California, and because mention will be made of certain of the provisions in later chapters of this report, those sections inserted in the Revenue and Taxation Code by the Statutes of 1949 which appear to be of substantive importance to the equalization of property tax assessments are reproduced here in their entirety.

Section 754 of the Revenue and Taxation Code deals with county and state-wide assessment ratios as these relate to state-assessed ("public utility") property. This section is part of Chapter 4, Part 2 of the Revenue and Taxation Code, and, although Part 2 of the Code is entitled "Assessment," and Chapter 4 is entitled "Assessment by the State Board of Equalization Generally," Section 754 is, in reality, concerned with equalization. Section 754 is as follows:

> "Following transmittal of notices of determination of county and state-wide assessment ratios pursuant to Section 1833, the board shall furnish, upon request therefor, a statement of these ratios to any owner or assessee of state assessed property who, upon written application therefor filed not later than the first Monday in August, shall be heard by the board as to any objection which he urges with respect to the assessment ratio in any county in which state assessed property is owned by or assessed to him. The application for hearing must specify in what respects the applicant believes that the determination of the relation between the assessed value and the market value of locally assessed property in the county is in error. Upon hearing, the board shall proceed as provided in Section 1835, and, at its discretion, may consolidate the proceeding with any held thereunder upon application of the county."

Section 757 of the Revenue and Taxation Code requires the State Board of Equalization to complete the assessment of public utility property by entering the assessed values on the board roll for each county at a ratio of assessed to market value that is the same as that determined for common property.

> "After deciding all petitions for determination, the board shall complete the assessment of state assessed property by entering upon the board roll for each county assessed values representing the same percentage of market value so determined as has been found, under Chapter 2, Part 3 of Division 1 of this code, to be represented by the assessed value, after equalization, entered upon the local roll in relation to the market value of property there assessed. In making these entries upon the board roll, the board may enter assessed values which are divisible by ten (10), counting any fractional amount which is more than five dollars ($5) as ten dollars ($10) and omitting it when it is five dollars ($5) or less. The assessed value thus entered upon the roll by the board shall constitute the actual value of the property as of the first Monday in March for purposes of taxation. Intangibles shall be assessed without reference to the percentage herein specified."

Section 1831 of the Revenue and Taxation Code sets forth the basic procedures to be followed by the State Board of Equalization in the collection of data for the computation of the ratios of assessed value to market value in each county.

> "To enable the board to perform its duties under this article and Sections 9 and 14 of Article XIII of the State Constitution, the board shall make a survey annually in each county to determine the relationship between the total value of land, improvements and tangible personal property entered upon the roll by the assessor, and the total market value thereof. As a basis for this determination, the board shall consider sales and other appraisal data compiled by appraisers competent to determine accurately the market value of the property. These data shall relate to representative samples of property subject to local assessment in each county sufficient in number and dispersion to assure an adequate cross-section of the taxable wealth within the county, both as to the classes of property enumerated and as to the location thereof."

Section 1832 of the Revenue and Taxation Code requires the utilization of the data for the determination of the state-wide ratio of assessed to market value.

> "Utilizing these data, the board shall determine also the average relationship between the assessed value of such property and the market value thereof for the State as a whole. This determination of average relationship shall not thereafter be revised regardless of whatever revisions may be made subsequently in the determination of the relationships between assessed and market values for individual counties."

Section 1836 of the Revenue and Taxation Code provides the State Board of Equalization with explicit instructions as to the procedures to be followed if the ratio of assessed to market value in any county is within a 10 percent tolerance range of the ratio of assessed to market value for the State as a whole.

> "Whenever the percentage of assessed to market value in any county as determined by the board does not differ from the state-wide average of assessed to market value, as likewise determined, by more than 10 percent of that state-wide average, the board shall equalize the valuation of the taxable property in the county for the purposes of taxation by assessing, on the board roll for the county, land, improvements and tangible personal property at a valuation which bears the same relationship to the market value of the property determined in pursuance of Section 755 as is borne by the assessed value of property on the local roll to the market value thereof, as that relationship has been determined under this article."

Section 1837 of the Revenue and Taxation Code issues comparable instructions, with the exception of the fact that Section 1837 permits an alternative procedure, to apply to those cases in which the ratio of assessed to market value for the county is beyond the 10 percent tolerance range of the ratio of assessed to market value for the State as a whole.

> "Whenever the percentage of assessed to market value in any county as determined by the board differs from the state-wide average of assessed to market value, as likewise determined, by more than 10 percent of that state-wide average, the board shall equalize the valuation of taxable property in the several counties of the State for the purposes of taxation either by the method prescribed in Section 1836 or by raising or lowering the value of land, improvements and tangible personal property entered upon the roll by the assessor of the county by that percentage required to make the assessed valuation of said property conform to the state-wide ratio of assessed to market value as established under this article."

The application of the provisions of Section 1837 would permit, under certain circumstances, a difference in the ratios of assessed to market value as between the counties of the State. Section 2002 of the Revenue and Taxation Code provides for an equalization of these ratios *for purposes of allocation of state funds to individuals and to local districts*, but not for purposes of property taxation. Section 2002 is as follows:

> "If the percentage of assessed to market value in any county, as certified by the board under Section 2001, differs from the state-wide average of assessed to market value, as likewise certified by the board, by more than ten (10) percent of that state-wide average, whenever any state department, board or agency allocates funds to the county or any district lying wholly or partly within the county upon the basis of the assessed valuation of property, the value of all land, improvements and tangible personal property entered upon the local roll of the county after equalization, shall be adjusted for purposes of such allocation to eliminate the difference between the county percentage and the state-wide average. Similar adjustment shall be made for the purpose of determining eligibility for a payment of state funds whenever such eligibility is affected by the assessed value of property owned by the prospective recipient."

It is clear from these and other sections of the Revenue and Taxation Code that the equalization activities of the State Board of Equalization and the county boards of equalization take place in two separate and distinct spheres. If any individual property owner whose property is assessed by the county assessor feels that his property is assessed at a level that is higher than that at which the property of other taxpayers in the county is assessed, he is entitled to seek redress by making application, in the prescribed manner, for a hearing before his county board of equalization. Although the county boards of equalization are permitted to issue equalization orders upon their own initiative,[3] it is common practice for them to do so only upon the presentation of suitable evidence by individual taxpayers. In a similar fashion, of a state-assessed taxpayer feels that his property is assessed at a level that is higher than that at which the property of other state-assessed taxpayers or locally assessed taxpayers is assessed, he is entitled, through a similar application for hearing and through a similar presentation of evidence, to obtain an equalization of his assessment from the State Board of Equalization. But the state board has a further function to perform under the California Constitution and under the provisions of the Revenue and Taxation Code, whether or not the specific equalization instructions introduced by the Statutes of 1949 are permitted to remain in effect. The State Board of Equalization is required to determine, on its own initiative (that is, without a prior complaint by taxpayers), the level of assessments in each county and in the State as a whole and to issue orders which will effect equalization on the broad basis indicated in Section 1841 of the Revenue and Taxation Code.

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[3] *Allison Ranch Mining Co.* v. *Nevada County*, 104 Cal. 161.

It is obvious that the machinery of equalization always produces a duplication of appraisals. A ratio of assessed value to market value, upon which equalization orders may be issued, can be determined only through a reappraisal of at least a portion of the tax roll. Even then, of course, the reappraisal is useful only if it can legitimately be assumed that the equalization authority is better equipped to determine the "true" market value figures throughout the equalization jurisdiction than is the assessment authority, for the equalization process is not designed to yield merely a collection of opinions but to yield a "true" value figure with which the assessed value may be compared. The extent of the duplication of appraisals which is inherent in the equalization process depends largely upon the vigor with which the constitutional requirements are pursued. Intracounty equalization, for example, typically involves a duplication of appraisals only to the extent that the objecting taxpayer seeks to prove the invalidity of his assessment relative to the assessments of other property by presenting his own appraisal findings for a selected number of properties. But a full acceptance of the constitutional mandate would mean that the county boards of supervisors would have to administer a reappraisal of all properties on the local rolls and then adjust, on their own initiative, the individual assessments to provide a uniform pattern of assessments within their counties. Similarly, a full acceptance of the constitutional mandate with respect to intercounty equalization and equalization as between locally assessed property and state-assessed property technically involves a further duplication of appraisals for the entire assesment roll of the State. In pure theory, the property tax in California, faced as it is with a bifurcated system of equalization, requires three separate and independent appraisals of every parcel of property in the State. The assessor (either state or local) is expected to make the first of these appraisals. The county boards of equalization are expected to make the second. If it were possible for the State Board of Equalization to have complete confidence in the conclusions of the county boards of equalization no third set of appraisals would be required. The state board would simply have to adjust the over-all ratios for the several counties to make them uniform for the State as a whole. But the absence of such confidence makes it necessary for the State Board of Equalization to reappraise (in theory) every parcel of property in the State and, on the basis of this third appraisal, to equalize the over-all county ratios. In practice, of course, the assessor actually appraises in any one year only a very small percentage of the total parcels of property within his jurisdiction. County boards of equalization reappraise an even smaller percentage, or none at all. Even the State Board of Equalization is committed to the use of a sampling technique, for it would be clearly impossible for the state board to appraise every parcel of property in the State on an annual basis. But even though these partial appraisal techniques are essential at all three levels of appraisal, they should be recognized for what they are—devices of administrative convenience that constitute one of the major failings of the property tax and that necessitate a more or less elaborate system of checks and balances. If the bifurcated system of equalization is to be maintained in California, and if it is insisted that the system produce ever-improving results, the development must be towards an enlargement of the area of duplication rather than towards its diminution. Duplication (or, more accurately, multiplication) of appraisals is a clear and inevitable social cost in the administration of the present California property tax. As always, it is necessary to ask whether the costs are justified by the services rendered.

The same ends can, perhaps, be approximated through various nonappraisal channels, some of which appear to have been used to good effect in California. These other channels involve a more direct approach to the problem of uniformity of assessments by attempting to assure adequate assessment to begin with. Such things as programs for the training of assessors, a regular publication of various kinds of appraisal data by a central collection agency, instructional assistance in actual appraisals, a modernization of assessors' offices, the provision of up-to-date maps, the assurance of adequate compensation for the assessor and his staff, and many other similar devices probably would do much to improve the assessment practices and to produce greater uniformity on the assessment rolls. These devices are not to be taken lightly and everything should be done to strengthen and expand their sphere of operation. But in the end it appears that a system of tests and checks must be employed to assure that the equalization requirements of the California Constitution and the Revenue and Taxation Code are being reasonably fulfilled. The equalization process finds no perfect substitute in the other methods which may be used to improve assessment practices.

EQUALIZATION AND THE PROBLEMS OF EQUITY

Some Theoretical Considerations

The fact that the California Constitution requires an equalization of assessments throughout the State provides no explanation of the underlying reasons for equalization. Indeed, if it could be shown that the only justification for the equalization activities of the two groups of agencies mentioned above were the formal satisfaction of the Constitution, there would be good reason for suggesting the deletion of these provisions from the Constitution and the removal of the last vestiges of necessity for a very costly and difficult administrative process. As a matter of fact, however, such claims may not be made. The abolition of the equalization requirement would have to be accompanied by the virtual abolition of the property tax and by the radical alteration of the whole pattern of fiscal jurisdiction in the State. Even so, the underlying need for equalization involves a truth that is, in its details at least, by no means self-evident.

The need for the equalization step in the administration of the property tax has most often been explained in terms of the relationship between equalization and equity, or fairness, in the tax structure. If the individual is to be assured that he will bear no more than his fair share of the total tax burden, there seems to be little doubt that the assessed value of the property that serves as the property tax base must be uniformly determined for all taxpayers. Most discussions of the equity problem in economic theory and taxation theory have been concerned with attempts to establish a concept of what constitutes a fair tax burden within the general framework provided by the ''due process'' clause of the Fourteenth Amendment of the United States Constitution.[4]

With this emphasis, the concept of equity has been associated with such principles as the ''ability-to-pay'' principle (with many variations) and the ''benefit'' principle (with many variations) and has been used to justify or to condemn a particular type of tax or a particular type of rate structure. In the present discussion, however, no attempt is made to raise the question of the equity or the inequity of the property tax itself as part of the total tax burden on individual members of the community. For present purposes the justification of the basic structure of the property tax as it now exists in the State of California is assumed, and the equity issue that is raised is one that exists within the present structure of the tax. It is, in other words, the relatively narrow problem of an equity of administration that is of immediate interest, rather than the broader problems that have to do with the equity of a given tax or of the entire tax structure. In this sense, the starting point of the equity discussion is a recognition that the present property tax is a proportional ad valorem tax and that equity is consequently defined in terms of the proportional taxation of a tax base that is the value of property declared in the law to be taxable. Individual taxpayers may be said to be equitably treated when all are taxed at a uniform percentage of the value of the taxable property which they own.

Even when the concept of equity under the property tax is thus narrowly circumscribed, it involves more than a uniformity of assessed valuations. Equity is always a problem of the tax *burden,* and this, in turn, is a product of the tax *base* and the tax *rate*. Since equalization of assessments is concerned only with the tax base, it is clear that the equity analysis of equalization must be confined to a single tax jurisdiction, or, more accurately, to an area within which the tax rate is uniformly applied. In such an area, the one remaining variable from an equity point of view is the tax base itself, and the relationship between equity and equalization is clearly established. In other situations, however, this simple relationship between equity and equalization cannot be said to exist, for a low ratio of assessed to market value may be offset by a high tax rate and a comparison of the assessment levels of two districts may greatly distort the true picture of equity.[5] Obviously, a 5% tax rate applied to a full market value assessment in one jurisdiction will provide the same tax burden as a 10% tax rate applied to a 50 percent assessment in another jurisdiction. In this latter case, the tax rate itself is an equalizing agent and equalization of *assessments* would produce a less, rather than a more equitable situation unless it could also be assured that the tax rate would fall to 5% in the jurisdiction with the low original assessment ratio.

The extension of these ideas to the problems of intracounty equalization versus the problems of intercounty equalization is relatively easy. Although a county does contain many different taxing jurisdictions with different tax rates, the county is the basic assessment unit. Unless it can be proven that the county assessor makes use of a consistently high ratio of assessed to market value in one district and a consistently low ratio of assessed to market value in another district, it is fair to assume that the tax rates employed by the several jurisdictions within the county are not designed to be equalizing agents that account for differences in the levels of assessment between the jurisdictions. Equity discussions with respect to these rates are still possible, of course, but they tend to take the form mentioned above, in which the tax burden is related to benefits received or some other overall criteria of equity. Equity in the narrower sense may, indeed, be said to depend upon an equalization of assessments *within* the county.

In the light of these considerations, the equity problems of equalization can be seen to involve purely inter*personal* comparisons and need not be concerned with inter*jurisdictional* comparisons. They exist apart from any interjurisdictional relationships which may be superimposed. Furthermore, it is clear that equalization is not made unnecessary by the device of centralized assessment, for assessments are already centralized at the county level and there is still a significant problem of intracounty equalization. *From an equity point of view a problem of equalization exists within any given assessment jurisdiction as an inevitable part of the property tax itself.*

But a problem of interjurisdictional equalization obviously can exist. Historically, the problem of interjurisdictional equalization has been most often associated with the practice known as ''competitive underassessment.'' This practice commonly arises when, for example, a state government levies a property tax with a tax rate that is uniform for the entire State and applies the tax rate to the assessed values supplied by the county assessors. In such a situation there is a tendency for the counties to maintain their own property tax revenues with high tax rates and to attempt to reduce the burden of the state tax upon the property owners within their boundaries by lowering the county assessment ratios below those of other counties. Even if it could be legitimately assumed that the ratios of assessed to market value were perfectly uniform within each county, equity under the state levy would clearly require an equalization of the assessment ratios between the counties. In other words, with intracounty equalization the equity of the local levy would be assured, but it would require intercounty equalization to assure the equity of the state levy. This was, indeed, the situation that prevailed in California prior to the so-called ''separation of sources'' adopted as part of the constitutional amendment of 1910, and in that early context, intercounty equalization had real meaning.

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[4] The Fourteenth Amendment to the United States Constitution states, in part, that no state shall "deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws."

[5] If it were always the case that the tax rate exactly compensated for the level of assessment, an equity comparison of tax *burdens* between different jurisdictions would still be possible. But the tax rate is, in fact, affected by the levels of service and the equity issue cannot be explored on an interjurisdictional basis unless the concept is broadened to include the relationship between the level of expenditure and the tax burden.

The virtual retirement of the State from property taxation after the constitutional amendment of 1910[6] clearly removed the problem of competitive underassessment discussed above. It might be supposed, at first sight, that the need for intercounty equalization was likewise removed.[7] For purposes of equity in the property tax, it was still necessary to insist upon intracounty equalization of assessments, but it might be supposed that any disparity between counties in the ratios of assessed to market value would be offset by differences in the tax rates. If the tax rates did not have these equalizing effects, criticism on equity grounds would have to be directed toward the budgetary practices of the counties rather than toward the assessment practices. This supposition would have been correct except for the fact that the Constitution of 1879 had changed the pattern of purely local assessments established by the Constitution of 1849, and had substituted a system of state assessment for a selected group of public utility properties. It was this element of *state assessment,* combined as it was with a local assessment of all other property, that would have made intercounty equalization necessary in the period between the Constitution of 1879 and the constitutional amendment of 1910 even if the State had retired from the field of property taxation in 1879. It was also this dual administration of the property tax, which was continued throughout the period of ''separation of sources'' (although in markedly changed form), that meant the continuation of an intercounty equalization problem in the period from 1910 to 1933.

The Constitution of 1879 and the events which produced its new system of property tax assessments are extremely important for an understanding of the present equalization problems in California. The basic patterns of assessment and equalization that were established by the Constitution of 1879 were, of course, substantially changed in the period between the constitutional amendment of 1910 and the Riley-Stewart Amendment of 1933, but they were brought back in even stronger form in 1933 and have not since been changed. The importance of this period for an understanding of present problems and the relationship of the period to the solutions that were incorporated in the constitutional amendments that introduced the ''separation of sources'' justify a closer examination of this early history of property tax administration in California.

The Early History of Equalization in California

The system of property taxation that was in operation for the 30-year period from 1849 to 1879 was prescribed in Article XI, Section 13 of the Constitution of 1849 in the following way:

> ''Taxation shall be equal and uniform throughout the State. All property in this State shall be taxed in proportion to its value, to be ascertained as directed by law; but assessors and collectors of town, county, and state taxes, shall be elected by the qualified electors of the district, county, or town, in which the property taxed for state, county, or town purposes is situated.''

The Constitution of 1849 thus provided for the ad valorem assessment of all taxable property within the State by local assessors. It was presumed that the State would also levy, but not assess or collect, taxes upon the same ad valorem base as that used by the several local governments. In view of the ''equality and uniformity'' requirement, the legislature was apparently expected to provide some machinery for the state-wide equalization of these many local assessments. It may be supposed, too, that it was intended that such machinery would involve more than a mere policing of the assessors to assure the fulfillment of the Constitutional provisions. The Constitution was clearly not self-implementing in this equalization aspect, for it required that property be taxed merely ''in proportion to its value'' and not at its ''true'' or ''market'' value or at any other absolute level.

The early revenue acts of the California Legislature were, of course, designed to implement these Constitutional provisions and to supplement them with a more or less detailed set of administrative instructions. There was, however, no statutory provision for any state-wide equalization agency. Instead, the equalization power was placed in the hands of county boards of equalization whose jurisdictions were naturally limited to the boundaries of the counties they were elected to serve. In view of the fact that the State also levied an ad valorem tax upon the county assessment roll, it is not surprising that the county boards of equalization found the limits of their personal interests to correspond rather closely with the legal limits of their jurisdictions. The Legislature hoped to provide for intercounty equalization by writing into the Statutes of 1850 the requirement that all property, real and personal, be assessed at its true money value. With the provision of this absolute assessment standard, the county boards could serve both as intracounty equalizers and as the watchdogs of the statutes. A local assessor might, for example, assess all property within his jurisdiction uniformly at 50 percent of its market value. Because of the uniformity of his assessment he would be fulfilling the Constitutional provisions; but because of his policy of general underassessment he would be failing to fulfill the statutory provisions. For this latter failing he would be subject to the review and revision powers of the county board of equalization.

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[6] Provision was made for a state property tax levy in the event that the other revenue sources available to the State were deemed to be insufficient to meet the annual expenditures for the State (California Constitution of 1910, Article XIII, Section 14(e)). With the exception of a small tax levied for a few years in connection with the Panama-Pacific International Exposition in 1915, there has been no state property tax since 1911.

[7] See Davisson, M. M., and Schmelzle, W. K., "Equalization of Property Tax Assessments in California," *National Tax Journal,* September, 1950, p. 222.

In fact, however, the attractions of competitive underassessment were too great for the effective exercise of these powers. As a result, the county boards of equalization served more as courts of appeal than as policing agencies, ordering changes in assessments only upon the successful appeal of individual taxpayers.[8] Assessments themselves appear often to have been determined by the taxpayer, for the assessor was permitted by law to accept the value reported to him by the owners of the property. It was not until 1853 that the assessor was required to determine the value of taxable property himself.[9]

The inequities that were involved in the unequal race for lower and lower county assessments indicated clearly that the requirements of the Constitution of 1849 were not being adequately fulfilled. The financial difficulties experienced by the new State, in part as a result of the failure of the primitive equalization machinery, indicated even more clearly that the practical requirements of fiscal adequacy were being neglected. By 1867 the need for a state-wide equalization authority had been widely discussed as the only possible solution to these difficulties. In April, 1870, in response to Governor Haight's recommendation of the previous year, a bill was finally passed to create the first State Board of Equalization. This board was an appointed body whose duties were to consist of investigating the practices of local assessors, advising these officials of appropriate assessment techniques, exercising a degree of moral suasion to produce a uniformity of these practices, and ordering on a county-wide basis any necessary changes in the levels of county assessments.

In the years from the beginning of statehood until the creation of the first State Board of Equalization, there were few problems associated with the taxation of public utility enterprises that were not also associated with the taxation of other types of property. For the most part, the absence of public utility tax problems is explained simply by the absence of public utilities. With one minor exception, there was no attempt at public regulation of private business in California before 1876, and even then it was only the most cursory sort of regulation. If an "applied" definition of a public utility is acceptable in this context, of which the central feature is the fact of regulation, public utility tax problems are virtually defined out of existence during this period of California's history. There are, of course, many problems associated with the taxation of public utilities that do not depnd upon this characteristic of regulation. Many of these, for example, are concerned with the fact that the continuous structures of public utilities often extend beyond the boundaries of a single taxing jurisdiction. Even in this case, however, the taxation problems were relatively insignificant in this first period. It was the decade from 1860 to 1870 that marked the beginnings of railroad construction in California, and it was the same decade that marked the beginnings of a public utility tax problem.

While there are some indications that certain problems were recognized by the tax authorities of the day, there is little indication that the problems were felt to be serious. Faults were found with the 1849 Constitution almost from the moment of its effectiveness, and many of the complaints had clear fiscal implications. But there was apparently no strong feeling that the small but growing railroad enterprises had to be treated separately in the Constitution. Even more significant was the failure of the State Board of Equalization to mention a railroad or a public utility tax problem in its first report in the years 1870 and 1871, in spite of the fact that the report contained a long list of insufficiencies and recommendations. One of the first acts of the board was the writing of a set of 25 regulations, concerned mostly with the technical problems of assessment, and entitled "Rules and Regulations Prescribed by the State Board of Equalization, for the government of Supervisors, Assessors and Collectors, in the counties of this State." The absence of reference to public utilities in these official pronouncements merely indicates that the State Board of Equalization was not greatly impressed with the urgency of the public utility tax problem. Among county assessors there was a clear tendency to value a mile of road or telegraph line at its cost of construction and to multiply this value by the number of miles reported by the company as lying within a given assessment jurisdiction. The concept of value was relatively unsophisticated and the determination of this value was consequently simple.

Although the taxation of public utilities was thus not in the foreground of the financial problems that faced the new State, certain early difficulties did indicate the possibility of a growing problem. These difficulties were a product of the close, if not always congenial, relations of the Central Pacific Railroad with state and local governments. In the field of taxation, most of the activities of the company were designed to obtain low assessments in particular counties. In 1868 the assessment of the company's property in Placer County was increased over the substantial protests of the company. When these protests went unheeded, the company simply increased its freight charges to all points in Placer County about $0.40 a ton. This is but one indication of the character of the combat in which the railroads were becoming increasingly engaged—a combat which was later to suggest the need for some form of regulation. In addition, of course, it made it difficult for local assessors and county boards of equalization to establish railroad values that conformed to the standards applied to other property, for the growth of railroads meant more than added convenience for existing communities; it meant almost complete dependence for the many communities that owed their existence to the railroads.

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[8] Frankhauser, William C., *A Financial History of California*, University of California Press, Berkeley, 1913, p. 144.

[9] *Ibid.*, p. 144.

In the meantime, railroad mileage continued to increase. In 1875 the State Board of Equalization reported total railroad mileage to be 1,257, and the total assessed value to be $10,252,842. The total value of rolling stock subject to taxation within the State was reported to be $2,410.99. In the same year there were approximately 1,932 miles of telegraph wire, mostly along the railroad right of way, with a value of $160,994.[10]

As the railroads of California grew in size and in number they also grew in economic and political strength. At the same time, opposition to the railroad policies of obtaining lower assessments, higher charges, larger subsidies from government bodies, and the appointment of more inept transportation commissioners continued to grow. By the opening of the Constitutional Convention of 1878-1879 this opposition had become sufficiently coherent to support demands for two types of restrictive policies: (1) a stronger and more positive type of railroad regulation; and (2) a centralized administration of railroad taxation.

On January 7, 1879, the Committee on Revenue and Taxation of the Constitutional Convention reported the results of its deliberations to the convention. Section 16 of the report of this committee read as follows:

> "The State Board of Equalization shall assess the value of all the property of all railroad corporations in this State. For the purpose of taxation, the value of all lands, workshops, depots, and other buildings belonging to or under the control of each railroad corporation, shall be apportioned by said board to the counties, cities and counties, cities, townships, and districts in which such lands, workshops, depots, and other buildings are situate; and the aggregate value of all other property of such railroad corporation shall be apportioned by said board to each county, city and county, city, town, or district in which its road shall be located, according to the ratio which the number of miles of such road completed in such county, city and county, city, town, or district, shall bear to the whole length of such railroad." [11]

The members of the Committee on Revenue and Taxation thus offered a sweeping amendment to the earlier methods of assessing railroad property, for the new Constitution was to provide for the complete centralization of all such assessments. There was to be no basic change in the taxes levied by the State and by the local governments, for both jurisdictions were to continue to make use of the ad valorem property tax on the basis of a single valuation of each item of property. For this reason the committee felt obliged to spell out specific instructions for the apportionment of railroad assessments to various taxing jurisdictions.

The debates in the convention on this section of the report indicated that the committee was impressed by three difficulties inherent in the system of local assessment of railroad property. However, none of these was convincing enough to pass the section through the convention unamended. The first of these difficulties was that of valuing the continuous property of those railroads whose lines lay in two or more counties. It was generally recognized that the local assessors throughout the State made use of markedly different assessment techniques and consequently came to markedly different valuations. This was particularly apparent in the case of railroad property, for sections of the same railroad line would have very different values per mile attached to them in the several counties through which they passed. The clear solution appeared to be the assessment of such property by a single body with state-wide authority. The committee's view is set forth in the following statement:

> "It was deemed by the committee. following the example of other states, wise to have this railroad property treated as a unit; to have the State Board examine it as it runs through all the counties, in order to have uniformity, instead of having the roadbed taxed at one thing in one county, and another in another county. Instead of that, have one central board to fix a uniform valuation upon it." [12]

Although reference was made to the treatment of railroad property as a unit, the committee seems to have had in mind the assessment difficulties associated with the intercounty property rather than the organic characteristics of the enterprises.

The members of the committee found it somewhat difficult to support this solution in debate, for many speakers, while willing to admit the disparity of local assessments, believed that the solution lay in equalization rather than in uniform original assessments. This latter argument was tactically bolstered by the fact that the committee had recommended the reconstruction of the State Board of Equalization and the broadening and strengthening of its equalizing powers. The proponents of centralized railroad assessment could only counter with the suggestion that in the equalizing process the board would have to examine the property anyway and that it might just as well determine the original value and save a duplication of assessments. There was no admission, however, that the same argument might be applied to all other types of property.

That this was not the only difficulty which the committee had in mind is indicated by the fact that the report suggested the centralized assessment of *all* railroad property, including that which was entirely intracounty in character and that which was not directly concerned with railroad operations. This suggestion undoubtedly arose from the fact that the new Constitution was also expected to provide for the separate taxation of the *franchises* of railroads. The value of such franchises was to be determined by the State Board of Equalization by the generally accepted technique of deducting the value of all tangible property from the value of the capital stock and debt of the corporation. This clearly could not be satisfactorily computed if the assessed valuations in the several counties were markedly different, for it would not be possible to add up all of the tangible property ''values'' as determined by the county assessors to determine the value of the whole. One of the delegates to the convention stated this idea in the following terms:

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[10] Biennial Report of the State Board of Equalization for the years 1874 and 1875.

[11] Debates of the Constitutional Convention of 1879, p. 934.

[12] *Ibid.*, p. 935.

> '' * * * it is my opinion that in some counties the property is assessed at half its value, while in others it is assessed far in excess of its value. There is absolutely no uniformity in the assessment of railroad property, and the idea of the committee was to have all this property assessed by one central board, and by that means get at a just, and fair, and uniform valuation of all the tangible property, and by the means I have indicated arrive at the value of the franchise.''[13]

In this context the centralized determination of a uniform assessment of railroad property appeared merely as a necessary step in the computation of the franchise value.

The third difficulty which the committee and other convention delegates recognized as associated with local assessment of railroads was concerned with the impotence of local assessors in the face of the political power wielded by the railroads in the State. The comments on this issue were many and ranged in severity from the rather elaborate complaint by Mr. Filcher of Placer County (the source of so many complaints against the railroads) to the simpler, but equally effective, statement of Mr. Howard.

> ''There is no doubt but the railroad companies exercise more political influence in the State of California than any other institution. In the matter of taxation, as in all other matters, they are brought face to face with the strongest political power in the State, and in this respect there is an advantage which this gives to the people over these corporations * * *. In view of the immensity of this power concentrated in these corporations, there is no power so able to cope with it as the State itself. No county has been able to do it, and therefore it seems to me a wise provision, a wise exception for the purpose of assessing the railroad property of the State, that the whole power of the State should be brought to bear to compel them to pay their taxes.''[14]

> ''I think I should rather stick to the report of the committee. I have more confidence in men elected by large districts than I have in assessors elected by counties. For instance, in many counties the railroad company elects the assessor, and as a result, assesses its own property, therefore I had rather trust the State Board.''[15]

The objections that were made in debate to the committee's report came from those who thought that uniformity and equity would be lost if a different system were designed for railroads than for other property, and from those who were jealous of the prerogatives of local governments. It was the view of the former group that there might be some point to the board's assessing the continuous structures of the railroads, for this was technically difficult property to assess, but that other railroad property should be left to local assessors. The consensus of convention opinion was that it was not necessary to value railroad property as a unit but that it was possible to break it up into its component parts, compare it with other property in the vicinity, and value it in isolation from the railroad system. The argument centered around the idea of the competence of assessors and the relationship between competence and a familiarity with the property to be assessed—a familiarity presumably gained by living close to the property for a number of years. This point of view, which favored a ''fragmentary'' valuation, is well expressed in the remarks of Mr. Cross to the convention. It is important not alone because it largely explains the majority attitude in 1879 but because it expresses attitudes that have occasionally been expressed in the equalization controversies of the present period. Mr. Cross stated,

> ''The property of a railroad corporation consists of roadbed, structure of the road, rolling stock, certain buildings occupied for the purpose of business, as well as town lots, freight buildings, workshops, and the like. Now I do not understand by what rule the State Board should assess the workshops of a railroad company in the town of Oakland, while the local assessors will there assess the workshops of other corporations and private individuals. I do not understand why the State Board will be more competent to place a value upon a lot here in the City of Sacramento than the local assessor will. If the local assessor is competent to put a value on a lot on the east side of Front Street in this city, I do not see why he is not the proper person to assess the value of a lot which belongs to the railroad company on the west side of the street. Now, the object in selecting a local assessor is to get a man who has some knowledge of the value of property in the locality, and who has at his command the means of getting the necessary information.''[16]

This argument was refuted by Mr. Dudley of Solano County, who made the only statement in the entire proceedings that showed even the beginning of an understanding of the unit characteristics of railroads. Mr. Dudley remarked:

> ''The railroad property of the State ought to be assessed as an entirety. It is the only means by which we can arrive at the real value, and secure the assessment of all the property belonging to the corporations. It cannot be done under the present system. I have seen it tried and it has failed. They were assessed upon the basis of the value of the iron and ties, if they were torn up and piled up in a pile, to be sold for old iron and fire wood. That has been the system, and it is wrong in principle. Under this system it is proposed to assess the roads at what they are worth for railroad uses; and for the purpose of running a railroad track, land for right of way in San Francisco is worth no more than land in Placer County. It is to be assessed at what it is worth for

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[13] *Ibid.*, p. 938, remarks of Mr. Edgerton.
[14] *Ibid.*, p. 937, remarks of Mr. Filcher.
[15] *Ibid.*, p. 939, remarks of Mr. Howard.
[16] *Ibid.*, p. 936, remarks of Mr. Cross.

railroad uses, and the other property used by the corporations is valuable because it is used for this purpose, and it is valuable for no other reason. Its value bears a relation to the value of the road. The value of these depots and workshops depends upon the uses to which they are put. They are valuable because the railroads have use for them.''[17]

On this matter, however, the debate produced a compromise solution. An amendment to the committee's proposals was adopted by the convention and the provisions finally incorporated into the Constitution of 1879 as Article XIII, Section 10 were as follows:

> ''All property, except as hereinafter in this section provided, shall be assessed in the county, city, or district in which it is situated, in the manner prescribed by law. The franchise, roadway, roadbed, rails, and rolling stock of all railroads in this State, operated in more than one county, shall be assessed by the State Board of Equalization, at their actual value, and the same shall be apportioned to the counties, cities and counties, cities, towns, townships, and districts in which such railroads are located, in proportion to the number of miles of railway laid in such counties, cities and counties, cities, towns, townships, and districts; and all other property of railroads shall be assessed by the counties in which such property is situated.''

Thus, in the Constitution of 1879 the pattern was established for a centralized assessment of public utility property. To be sure, the only public utilities selected for this special treatment were the railroads, and not even all railroad property was centrally assessed under the Constitution of 1879. But the lines were clearly drawn, and they have never been fully erased.

It is important to realize that this first step toward centralized assessment was taken in a period in which the problem of *inter*county equalization was an extremely important matter. It was important because of the fact that both the State and local units of government levied property taxes upon the same assessment. Clearly, the device of subjecting one type of property to centralized assessment did not solve the problem of intercounty equalization. In fact, it added one more equalization problem, i.e., the problem of equalizing the ratio of assessed to market value for state-assessed property with the ratio of assessed to market value for locally-assessed property.

The system of a dual application of the property tax was continued until the constitutional amendment of 1910, at which time the state government retired from the field of property taxation (to all intents and purposes) and allowed this tax source to be exploited entirely by local governments. With the retirement of the State Government from the field of property taxation the problem of competitive underassessment of the type described above disappeared from the California fiscal scene. With it went the need for intercounty equalization. There was now no reason, *at least in terms of the equity of the property tax itself*, for an insistence that counties assess the property within their borders at the same ratio of assessed to market value as all other counties.

The period from the amendment of the Constitution in 1910 to the amendment of the Constitution in 1933 was the period of the ''in lieu'' gross receipts tax for public utility enterprises. As compared with that used in the period prior to 1910, the list of public utilities was enlarged to include, as well as railroads, such enterprises as car, express, telephone, telegraph, gas, and electric companies. If the gross receipts levy had been so constructed as to be completely independent of the ad valorem property tax there would have been only one kind of equalization problem in the State. This would have been the ever-present problem of intracounty equalization. But such independence was not built into the structure. The gross receipts tax that was applied to public utilities in this period was an ''in lieu'' tax, and, as such, required an equalization of the tax burdens imposed by the gross receipts tax as compared with those imposed by the ad valorem property taxes. There was, in other words, a need for a kind of equalization as between public utilities on the one hand and the owners of common property on the other, although this equalization clearly could not take the form of a simple comparison of assessed valuations. The need for this kind of equalization and the methods that were to be used to achieve it, made it necessary to obtain, in addition, an *intercounty* equalization of the ratios of assessed to market value for *common* property. The methods that were to be used to achieve the desired uniformity involved a manipulation of the gross receipts tax *rate* that was applied to the listed public utility enterprises. The first schedule of rates applied under the gross receipts tax was based upon the assumption that, on the average, nonutility property was bearing a tax burden of approximately one percent of its true value. According to the formula used to compute the gross receipts tax rate,[18] the rate could be different for different kinds of utility enterprises, and, of course, it could fluctuate from year to year as the average tax burden on nonutility property was assumed to change. But the gross receipts tax rate obviously had to be uniformly applied over the State as a whole. Consequently, an equalization of burdens as between public utilities and common property could only be claimed if the property tax burden of all counties corresponded precisely with the state-wide average (assumed to be one percent of the true value of property). Assuming an allowance for different levels of services in each county provided through property tax revenues, this, in turn, meant that equalization of tax burdens as between public utilities subject to the gross receipts tax and other taxpayers subject to the ad valorem property tax could only be completely effective if all common property were assessed at uniform ratios of assessed

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[17] *Ibid.*, p. 938, remarks of Mr. Dudley.

[18] The formula was that suggested by the Commission on Revenue and Taxation appointed in 1905 by the Legislature to study the effectiveness of the whole "separation of sources" scheme. The formula for equalization suggested by the commission in its report of 1906 was

$$t = \frac{n \times r}{i}$$

in which t was the gross receipts tax rate, n was the percentage of net earnings to gross earnings, i was the interest on the investment, and r was the assumed tax rate on common property.

to market value in the counties of the State. To be sure, these provisions were not included in the tax laws, but to the extent that they were not, it is clear that the laws contemplated only an approximate equalization. At first sight, then, the "separation of sources" introduced in the Constitutional Amendment of 1910, seemed to make intercounty equalization *per se* unnecessary. But the linkage between the ad valorem property tax and the gross receipts tax provided by the "in lieu" character of the latter made intercounty equalization of assessments as necessary as it had been in the previous periods. In effect, a state-wide gross receipts tax had been substituted for a state-wide property tax levy, and, although the older form of competitive underassessment was no longer a profitable adventure for individual counties under the gross receipts system, the basic need for intercounty equalization of assessments was unchanged. The "separation of sources," at least as it related to the problems of equalization, appears to have been a separation in name only.[19]

The constitutional amendment of 1933 removed the gross receipts "in lieu" tax and once more subjected the public utility enterprises in the State to the ad valorem property tax. The Constitution as amended retained the feature of centralized assessment for these public utilities that was first introduced in the Constitution of 1879, and extended the assessment jurisdiction of the State Board of Equalization to a broader class of public utilities and to *all* of the taxable property of some types of enterprises. It was this constitutional amendment that established the present pattern of assessment and equalization in the State. As it relates to the assessment of public utility property, the relevant portion of the present California Constitution is the first paragraph of Article XIII, Section 14, which states,

> "All pipe lines, flumes, canals, ditches and aqueducts not entirely within the limits of any one county, and all property, other than franchises, owned or used by (1) railroad companies including street railways, herein defined to include interurban electric railways, whether operating in one or more counties, (2) sleeping car, dining car, drawing-room car, and palace car companies, refrigerator, oil, stock, fruit and other car-loaning and other car companies operating upon the railroads in the State, (3) companies doing express business on any railroad, steamboat, vessel or stage line in this State, (4) telegraph and telephone companies, (5) companies engaged in the transmission or sale of gas or electricity, shall be assessed annually by the State Board of Equalization, at the actual value of such property."

Thus, the present requirements in the California Constitution with respect to centralized assessment of public utility property bear a striking similarity to the proposals made by the Revenue and Taxation Committee of the Constitutional Convention of 1878-1879, the most important difference being the inclusion of additional types of public utility enterprises in the present Constitution. The problem of competitive underassessment and the revenue difficulties inherent in the practice were, in part, responsible for the revisions introduced in 1879. These problems no longer remain in the administration of the California property tax, but centralized assessment of public utility enterprises has become an established institution. At the moment it is not necessary further to explore the reasons for centralized assessment of public utilities or for the continuance and possible extension of the practice. The mere fact that there exists a central assessment of a portion of the taxable property within the State and a local assessment of the remainder indicates the existence of an equalization problem.

It appears, then, that there are two kinds of equalization problem which, *from the point of view of equity*, are inherent in the present property tax structure in California. The first of these is the problem of *intra*county equalization. This, of course, is not only a problem arising from the *type* of property tax law presently in effect in California; it is also a problem that is inevitably associated with the property tax itself, whatever the specific provisions of the tax law. The second is the problem of equalization of assessments as between public utility property on the one hand and common property on the other. This second problem is distinguished from the first purely because it involves two different assessment jurisdictions, while the first involves only the jurisdiction of the county assessor. It should be noted that, at the present time, *there is no problem of intercounty equalization that can be rationalized on equity grounds alone.*[20] It makes no sense to argue about the ultimate fairness or unfairness of the level of common property assessments in one county as compared with the level of common property assessments in another county, for each county contains a pattern of tax rates that are basically independent of those of other counties. Equity criticisms must, in this case, be expressed in the broad terms of the whole budgetary process and not in the narrow terms of an equalization of property tax assessments. Furthermore, the relationship between intercounty equalization and the problem of state versus local assessment provides no *necessary* reason for intercounty equalization. The question "are public utility taxpayers paying their fair share but no more than their fair share of the tax burden?" is a fair question on equity grounds. But it can be answered by confining the comparison entirely to the boundaries of a given county, and need not be given a state-wide reference. Consider the following hypothetical example. Assume that there are two counties in the state, County A and County B. Assume, further, than *intra*county equalization has been achieved in each county so that it is possible to abstract from this equalization problem. It is established that County A makes use of a 10% tax rate and applies it to an assessment that shows a ratio of assessed to market value of 25 percent. It is also established that County B makes use of a 5% tax rate and applies it to an assessment that shows a ratio of assessed to market value of 50 percent. For the two-county state as a whole, the simple average ratio of assessed to market value would be 37.5 percent. Assume now that the state assessment agency assessed public utility property at 50 percent of its market value and distributes this value over the two counties in the state in such a way that it may be assumed that the assessment ratio is 50 percent in each county. If the state-wide average assessment ratio of 50 percent for public utilities is compared with the 37.5 percent state-wide average assessment ratio for common property, the difference in ratios is 12.5 percent. This is, to be sure, a meaningful comparison, but it hides the fact that the difference is made up of a 25 percent difference in one county and a zero difference in the other. The equalization problem *could* be solved, of course, by an order requiring County A to assess at 50 percent (and to lower its tax rate corresponding), but this is clearly not the only possible solution. If the state assessment agency were able to determine the difference in ratios as suggested above, it could simply apply a 25 percent ratio to the market value of the utility property located in County A and a 50 percent ratio to the market value of the utility property located in County B. There would be nothing inherently *inequitable* in this latter solution, in spite of the fact that no intercounty equalization could be claimed. The utility property in County A would bear a tax rate of 10%, as would the common property in County A; and the utility property in County B would bear a tax rate of 5%, as would the common property in County B. In this example, the rates themselves are equalizing agents. In each county it would be necessary to judge that public utilities were fairly and equitably treated as compared with the owners of common property.

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[19] A somewhat more extensive description of the period of "separation of sources" is included in the *Report of the Senate Interim Committee on State and Local Taxation*, Part Three, "State and Local Taxes in California: A Comparative Analysis," 1951, pp. 266-268. For a comprehensive analysis of the period see Stockwell, M. M., *Studies in California State Taxation*, University of California Press, 1939, Chapter II; and Campbell, E. C., "State and Local Tax Revenues in California," *American Economic Review*, March, 1936, pp. 41-52.

[20] Obviously, this is not to say that there is no need for intercounty equalization, but merely that, whatever the problem that does exist in this area, the principles of equity need not be invoked. The very real need for intercounty equalization in the present fiscal operations of the State is described in later sections of the present chapter.

In the light of this argument there is a clear and important difference between the equalization problem that existed in the period of the gross receipts taxation of public utilities and that which exists at the present time. Under the gross receipts tax it was impossible to equalize on a selective, county-by-county basis, for the "equalizing" tax rate levied upon gross receipts had to be uniform for the entire state. If there was to be an equalization of burdens as between utility property and common property, there clearly had to be an intercounty equalization of common property assessments. In effect, in the period of the gross receipts tax, the problem of intercounty equalization for common property assessments rode in on the coat tails of the problem of equalizing the burdens of taxation as between the public utilities and common property in general. In the present situation, however, it *is* possible for the equalizing element to be employed on a selective, county-by-county basis and the need for an intercounty equalization of common property assessments disappears as a significant problem of equity under the property tax. The kind of solution involved in this selective equalization may, of course, be extremely inconvenient and difficult to administer. Or it may be undesirable from the point of view of the budgetary process as such to permit the tax rates to serve as equalizing agents. Or, even more importantly, it may be that such a selective equalization would involve an inequitable distribution of state funds to the counties and to the districts within the counties.[21] But from the point of view of the property tax itself, there would, at the present time, be nothing inequitable in the lack of intercounty equalization.

Public Utilities and the Problems of Equity Under the Property Tax

In the discussion thus far, the problems of equalization have been explored from the point of view of the manner in which they are related to the problems of equity. It has been shown that, in the history of the California property tax, the relationship between equalization and equity has been a changeable one. The only unchangeable element has been the need for *intra*-jurisdictional equalization of assessments. This, of course, has been described as intracounty equalization, on the assumption that the county is the basic assessment unit for common property in California. All of this analysis has been based upon the assumption that it is possible to define equity, or fairness, within the property tax structure as dependent upon only the tax rate and the tax base, and upon the tacit assumption that equity in the tax structure *per se* is always desirable. In the case of taxation of the property of public utility enterprises, however, these assumptions are too restrictive and serve only to hide other issues which, although extremely important, are rarely considered in more than an off-hand way. The question of whether or not there is a *real* equity issue in the equalization of property tax assessments as between public utility property and common property is an important question and, although a final answer is not attempted in this report, it must clearly be posed in any statement of the problems of equalization. It is to this question that the discussion is now directed.

The question of the desirability of equalization, as this process narrowly relates to the property taxation of public utility enterprises, can hardly be divorced from the broader question of the purposes which lie behind the entire tax system and even the purposes which lie behind some types of non-tax legislation. Equalization is, as has been pointed out, one of the tangible administrative evidences of the desire for equity in the tax system, and the principle of equity appears to be so firmly established in American taxation that proof of inherent inequity in any proposed tax is often enough to obviate further consideration. And yet the need for equity in taxation is not something which should be taken for granted, unless, of course, it is so narrowly defined that it loses most of its substance.

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[21] The distribution of state funds does, indeed, involve an equity problem. But it is an equity that is concerned with the distribution itself and not with the application of the property tax. This point is further discussed later in the present chapter.

Perhaps the most troublesome problems in the field of public finance are those which relate to these basic purposes of taxation in a democratic state. And yet the importance of a clear understanding of these purposes cannot be denied. Although the individual taxpayer is as easily persuaded of the certainty of recurrent taxation as he is of eventual death, he typically finds it much more difficult to bring within the range of his comprehension those purposes which rationalize the use of particular types of taxes. Indeed, even the most discerning of taxpayers, pursuing these purposes with an energy born of sheer self-interest, is soon lost in a maze. For the types of taxes currently in use are so numerous, the uses to which the tax funds are put are so diverse, jurisdictional structures are so complex, and the specific provisions of the tax laws are so unsystematic in appearance, that the pattern appears to be one of confusion rather than of purposiveness.

It is sometimes suggested in discussions of tax theory that the confusion into which the taxpayer is cast is not really too unfortunate. Indeed, it appears that confusion is occasionally purposely stimulated by the introduction of new taxes and by the concentration upon taxes which are effectively disguised as prices. The assumption behind such legislation appears to be that a tax burden which is not recognized is no tax burden at all. The suggestion of such ''calculated confusion'' is, however, quite inconsistent with democratic principles, the essence of which is a reasonably informed electorate. The interest of the *taxpayer* in the question of what we are trying to do with our system of taxation is clear and undeniable whether approached from the point of view of ''enlightened self-interest'' or from the broader point of view of the successful operation of democratic institutions.

If an understanding of the basic purposes of a tax system is important for the taxpayer, it is at least equally important for the elected representatives of the taxpayer. It is clear that, in modern democratic processes, these representatives cannot be merely the interpreters of the public wish in every minute detail. Rather they must be the direct framers of tax policy, and public interest must be restricted (with some important exceptions) to electoral review of the policies and of the people responsible for them. Under such circumstances it is just as important for the voter to be able to assume the good faith and the good judgment of his representatives as to be able to understand pronouncements and legislation that establish or implement the principles of taxation. The assumption of good faith is essentially a moral issue and, although of extreme importance is not of immediate interest. The assumption of good judgment is a question of the willingness of legislators to consider in an objective fashion all matters relevant to a required decision. But whether the institutions be democratic or autocratic, the need for a clear definition of objectives and a complete understanding of these objectives by the active participants in the plan is essential to a well-ordered society.

In spite of the importance of such understanding, it must be admitted that the question of purposes has often been, to a large extent, an academic one. In part, this concern with a narrower range of tax problems at the level of state and local taxation may be explained by the effective pre-emption of important tax types by the Federal Government and by the growing relative importance of problems which are of national scope. In part it may be explained by the typically complex governmental structure that exists at the lower levels of public affairs and the magnitude of the task of bringing order out of the chaos of interjurisdictional relationships. In part it may be explained by the general belief (correct or incorrect) that taxpayers insist upon an identification of their particular tax contributions with particular buildings and particular services rather than with the general social welfare. In part it may be explained by the fact that some groups in the community have an interest in preventing an adequate boat from being rocked. In part it may be explained by the feeling that the problem of ''where we are going'' is too esoteric for a hardheaded tax discussion and that we should be solely interested in ''how to get there.''

From time to time, however, every state government finds itself faced with the necessity of an extensive exploration of the entire tax structure or of some important part of it. A changing political atmosphere, a changing size and distribution of population, or changing economic circumstances make the old laws and even the state constitution unbearably restrictive. Under these circumstances it is almost inevitable that there be some examination of the purposes of the tax system —some attempt to stand back from the trees to gain a clearer perspective of the forest. Such examination may result in the discovery of insufficiencies or inconsistencies of purposes as between the tax structure on the one hand and types of nontax legislation on the other. But it is still true that this concern with the purposes which lie behind the state and local tax structure tends to take the form not of a constant vigilance but rather of an attempt to provide a discretely changing tax structure to solve the problems of a steadily changing economy.

The history of California fiscal affairs is excellently illustrative of this pattern of periodic reform. Since the beginning of statehood in 1850 there have been three major revisions of the state tax structure, some of which were discussed above. The first of these was contained in the Constitution of 1879; the second consisted of Constitutional Amendment No. 1, approved in 1910; the third, and in many ways the most sweeping, was the so-called Riley-Stewart Amendment of 1933. Each of these revisions appeared after lengthy debate as to the objectives of state and local tax policy and rather full investigations of the existing tax structure in relation to these objectives. It is also of significance to the present report that a central feature of each of the revisions was the alteration of the general property tax and, more particularly, of the manner in which the general property tax was applied to public utility enterprises.

A discussion of the purposes to be achieved by taxing public utility enterprises must first be undertaken before any judgments can be made with respect to the existing system or proposals for changing it. Furthermore, it is also necessary to make some attempt to locate the burdens of the tax with an analysis which economists call "shifting and incidence," that is, with an analysis of the manner in which the original impact of the property tax burden may be shifted to the shoulders of others in the community. Whether the approved purposes be in terms of the equity of the tax itself or in terms of an integration of taxation and regulation, implicit or explicit assumptions about the location of tax burdens cannot be avoided. It is clearly impossible to analyze either the fairness of a tax or its economic effects unless it is possible to come to reasonable conclusions regarding the shifting and incidence of that tax.

It has long been recognized that this topic of shifting and incidence is an important point of contact between the field of public finance and the field of price theory. Although it can hardly be said that the theory of tax shifting has kept pace with developments in the theory of price determination, there is nevertheless general recognition that the existence and the degree of shifting depend upon the character of the enterprise involved, the degree of competition which faces the firm, the nature of the demand for its products, and particularly the assumptions which may legitimately be made about the motives of those individuals who are responsible for the pricing decisions of the firm.

In the case of public utility enterprises this problem of shifting and incidence seems, at first sight, to lend itself to somewhat easier factual investigation than in the case of other business enterprises. The predominant characteristic of a public utility is the fact of rate regulation. Under these circumstances the presence or absence of shifting is determined, in part at least, by the specific pricing policies of the regulatory authorities. Since public utilities commissions are in the nature of public bodies with public responsibilities, it should be necessary only to examine the public record of these commissions. A range of indeterminacy would still exist, of course, since the public utilities commissions rarely require price increases in the same way that they occasionally require price decreases. Within this range the pricing decisions would be made by the company. Nevertheless, the analysis of shifting and incidence should be greatly facilitated by the fact that regulation stands as a specific record of pricing policies. Strangely enough, however, no thorough study of the theory and practice of tax shifting as it applies to the taxation of public utilities appears to have been made. Instead, the sanction of the Supreme Court [22] for an inclusion of all taxes in the operating expenses to be covered by the rates charged by the utility is usually cited as *prima facie* evidence that all utility taxes are always shifted to the consumer of the utility's services.

The same willingness to assume that utility taxes are always shifted has occasionally been illustrated by the discussions which have surrounded the present investigation. The question "what difference does it make whether equalization is perfect or not if public utilities pay no taxes anyway?" has been posed on several occasions. The question has usually gone unanswered in view of the insistence upon meeting the formal requirements of the California Constitution and the Revenue and Taxation Code, but the question nevertheless remains a significant one. If utility tax burdens are shifted in whole or in part it is no longer possible to establish a simple equivalence between equity and equalization. Equity becomes a much more complex issue for it involves consumers as well as property owners. And equalization of property assessments, consequently, cannot be used as an administrative tool to assure that "everyone bears his fair share of the tax burden."

Under certain circumstances even the utility companies are anxious to inform the consumer that all utility taxes are shifted onto his shoulders, presumably for the purpose of suggesting that the higher rates for which the companies may be petitioning a government agency are not entirely divorced from government fiscal action. At other times and under other circumstances, of course, they show a general willingness to describe themselves as taxpayers when they insist that a payment of *taxes* out of *regulated* profits represents a multiplication of governmental sins.

The existence of tax shifting is not proved, however, by the fact that the courts have *permitted* shifting. Nor is it proved by the attitudes of some tax administrators and legislators, nor by the occasional, persuasive pronouncements of the public utility companies. It can be proved only by a factual investigation of the pricing policies of the regulatory authority and the public utility company itself.

Because the problem of shifting and incidence provides a point of contact between taxation and pricing it also provides a point of contact between taxation and regulation, since regulation is clearly an essential aspect of pricing in this particular industrial context. As pointed out above, this contact is partially in terms of the need for examining the nature of regulation before the *existence* of tax shifting can be proved. But it is also in terms of the relationship between the *purposes* of taxation and the *purposes* of regulation. Thus, if the regulatory authority has, with great finesse, determined a schedule of rates just high enough to attract new investors and just low enough to meet whatever standards of fairness it may have established for the consumers of the utility's services, any increase in the taxes applied to the utility company are bound to disturb the regulative decision. If the taxes *are* shifted, the rates will be too high to meet the standards of fairness to consumers. If the taxes *are not* shifted, the rates will be too low to attract necessary capital. This is an obvious overstatement of the case for it may be declared categorically that public utility enterprises are rarely in this marginal position (although it seems a reasonable interpretation of the position of some railroad enterprises) and that regulatory commissions rarely operate with just this degree of finesse. The case does, however, illustrate the essential interdependence of taxation and regulation at the level of basic objectives.

Similarly, if equity is an accepted principle of taxation, it may be disturbed by any shifting of the tax. Although it may be possible to justify the taxation of consumers on broad equity grounds, the fact that not all individuals in the community are likely to be involved in the tax, either because they do not consume certain utility services, or because they buy equivalent services from companies not defined as utilities for tax and regulatory purposes, or because they buy utility services from an untaxed, publicly-owned utility, makes the equity principle largely meaningless in the application.

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[22] *Galveston Electric Co.* v. *Galveston*, 258 U. S. 388, 399 (1922).

In any act of shifting, taxes will, of course, be considered along with other costs of operation. Aside from assuring that appropriate accounting procedures are followed and that the company's purchases are not artificially inflated by collusion or other malfeasance, the regulative agency must consider the nontax costs as given data. The rate-making problem is then merely that of adjusting the schedule of rates to fit this pattern of costs. Indeed, it might be said that any increases in the nontax costs are ''shifted'' to the shoulders of the consumer of the utility's services. It is at this point that rate-making comes closest to the application of a formula, with the independent (and largely uncontrollable) variable being the changes in costs.

There is often a tendency to think of the *tax* costs of the utility in the same fatalistic light. From the point of view of the authority immediately responsible for the rate regulation this approach is understandable. Such authority rarely has jurisdiction over the taxes which the utility must pay. Taxes are consequently no part of the active policy of the rate regulator and are merely given data in the same sense as other costs and call for the same passive action by the regulator. But from the point of view of the government in general, an adherence to a passive role is neither necessary nor desirable. The fact that the government has chosen to regulate the activities of public utility enterprises means that at least some of the unique economic characteristics of such enterprises have been recognized in official circles. While it might not be found to be practicable or desirable to make use of the tools of taxation for direct control purposes, it is at least fair to hope that the taxation applied to public utilities will not make the job of regulation appreciably more difficult than it need be.

The question of the desirability of equalization as applied to public utility enterprises is thus an involved one and requires a consideration of the nature of public utility regulation itself. It is recognized that equalization is merely an administrative evidence of the desire for equity in the tax structure. Because of this connection it is necessary to examine the content of the equity argument and to ask whether it is meaningful to establish one standard of fairness for purposes of rate regulation and another standard of fairness for purposes of taxation. Public utility officials might ask the question (with an implied accusation) in this way: ''The government tells us that we may not earn greater profits than those determined by the commissions. Then the government taxes a large share of these profits away from us. Is this a fair distribution of burdens?'' Consumers, on the other hand, might ask the question (also with an implied accusation) in a rather different way: ''The government tells us that these are fair prices for us to pay for these services. Then the government itself raises these prices by the imposition of taxes upon utility companies. Are not these government policies in conflict, and are they not, by the government's own admission, unfair to consumers?'' Thus, from either point of view, there is an equity issue to be considered. But whether this equity issue is approached from the point of view of the utility company or from the point of view of the consumers of the utility's services depends upon the character of the answers obtained in the analysis of shifting and incidence. In this phase of the argument, an analysis of the nature of regulation is of particular importance, for shifting is a matter of price change, and price change is, in some way, related to public regulation. It is on the basis of the answers to these questions that it will be possible to declare the problem of equalizing the assessed values of public utility enterprises with the assessed values of other properties to be either artificial or real. In the past the reality of the problem has been accepted without analysis in the construction of the property tax in California. The events of recent years, however, have provided abundant evidence of the need for a much closer scrutiny of the assumptions.

INTERCOUNTY EQUALIZATION AND THE PROGRAM OF STATE AID

Up to this point the case for equalization has been based solely upon equity grounds. It has been found that there is a clear need for *intracounty* equalization if the property tax is to be equitably administered. It has been less clear, however, that equity considerations demand an equalization of assessments as between public utility property and common property, for it is difficult to be perfectly clear about the meaning of equity in the case of the taxation of regulated enterprises. It was also found in the preceding analysis that there is nothing in the equity argument that would require an *intercounty* equalization of assessed valuations. If there *is* a need for an equalization of assessments as between counties it must arise from features which are not concerned with the equitable application of the property tax itself. At the present time in the State of California an intercounty equalization of assessments is made necessary by the manner in which the State allocates funds to local units of government for the purpose of assuring a minimum level of educational services throughout the State. The relationship between the program of state aid to school districts and the level of assessments is such as to make equalization of assessments an essential part of the allocation system. If intercounty equalization of assessments exists, the allocation of state funds can, in this respect at least, operate effectively. If intercounty equalization of assessments does not exist, the allocation of state funds must be judged to be faulty. But the presence or absence of intercounty equalization still has no effect upon the success or failure of the property tax as such.

The basic Constitutional provisions relating to the allocation of state funds for the public school system are contained in Article IX, Section 6 of the California

Constitution. Amendments were made to this section of the Constitution as a result of the adoption of the initiative constitutional amendment by the voters of the State in November, 1952. The amendments become operative on July 1, 1953. The relevant portion of Article IX, Section 6 of the California Constitution, as amended, is as follows:

> "The Legislature shall add to the State School Fund such other means from the revenues of the State as shall provide in said fund for apportionment in each fiscal year, an amount not less than one hundred and eighty dollars ($180) per pupil in average daily attendance in the kindergarten schools, elementary schools, secondary schools, and technical schools in the Public School System during the next preceding fiscal year.
>
> "The entire State School Fund shall be apportioned in each fiscal year in such manner as the Legislature may provide, through the school districts and other agencies maintaining such schools, for the support of, and aid to, kindergarten schools, elementary schools, secondary schools, and technical schools except that there shall be apportioned to each school district in each fiscal year not less than one hundred and twenty dollars ($120) per pupil in average daily attendance in the district during the next preceding fiscal year and except that the amount apportioned to each school district in each fiscal year shall be not less than twenty-four hundred dollars ($2,400)." [23]

It is clear that Article IX, Section 6 of the California Constitution does two things: it sets up the minimum size of the State School Fund, and provides for the distribution of a portion of this fund. The portion of the fund allocated by this constitutional provision is designated as basic state aid and is designed to provide a minimum amount of state funds to each of the school districts without reference to the resources or wealth of these school districts. It is based, in the minimal sense, purely upon the number of pupils in average daily attendance in the fiscal year preceding the allocation, and contains no reference to assessed valuations or tax rates in the various school districts throughout the State.

The type of allocation that is most important for present purposes, however, is the so-called "State Equalization Aid for School Districts." As the first step in the computation of the amount of such aid that may be received by any one school district, the State has defined, in terms of dollars per pupil in average daily attendance, the funds required for a minimum level of performance for each of the several types of school districts. This is entitled the "Foundation Program for School Districts," and its computation is described in detail in the Education Code, Division 3, Chapter 15, Article 4, Sections 7031 to 7038, inclusive. The foundation program is not part of the amount actually apportioned by the State to the local districts, but is merely part of the computation of the amount to be apportioned as state equalization aid.

The system of allocation involves the assumption that part of the foundation program will be provided by the basic state aid described above; that part will be provided by the district itself from its own revenues; and that part will be provided by state equalization aid. Thus, once the foundation program has been defined, and once the Legislature has decided upon the specific program of basic state aid, the amount allocated to any school district in the form of state equalization aid will depend entirely upon the amount which it is assumed the district could provide from its own resources and upon the amount of money in the State School Fund available for state equalization aid. The one remaining variable is thus the amount which it is assumed the school district in question can provide out of its own resources. The determination of this amount involves the computation of the so-called "District Aid." This computation is described in Section 7081 of the Education Code as follows:

> "The Superintendent of Public Instruction shall then compute for each district described herein the amount which a tax levied on each one hundred dollars ($100) of 90 percent of the assessed valuation in such district as shown by the equalized assessment roll of the district for the preceding year would produce if levied, if such tax was:
>
> "(a) Forty-five cents ($0.45) in an elementary school district.
>
> "(b) Forty cents ($0.40) in a high school district.
>
> "(c) Twenty-two cents ($0.22) in a junior college district."

The district aid so computed should not be confused with the amount which the district actually does obtain through its own taxing powers. Nor should it be thought to represent aid actually allocated to the district by the State. It is purely a computational device, and indicates merely what a given school district *could* raise for itself *if* it levied the specified rate upon 90 percent of the assessed valuation of the district.

The total amount of state equalization aid allocated to a given school district is, then, described by the following formula: State Equalization Aid = [Foundation Program—(Basic Aid + District Aid)] X a correction factor.[24]

Before a given school district is able to obtain this equalization aid it must have levied, in the year prior to the year in which the allocation is to be made, a tax rate equal to or greater than that used in the computation of the district aid. This is prescribed in Section 7095 of the Education Code:

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[23] The Constitutional Amendment of 1952 made only two changes to this portion of Article IX, Section 6 of the California Constitution. The minimum amount to be placed in the State School Fund in each fiscal year was increased from $120 to $180 per pupil in average daily attendance, and the minimum amount of Basic State Aid was increased from $90 to $120 per pupil in average daily attendance.

[24] The correction factor is designed to account for the available resources in the State School Fund for state equalization aid apportionment. If the amount available for the whole State for equalization aid exceeds the uncorrected amount, the correction factor is positive (larger than 1.00); if the amount available for the whole State for equalization aid falls short of the uncorrected amount, the correction factor is negative (smaller than 1.00). The correction factor thus involves a comparison, for each school district, of the uncorrected equalization aid figure and the amount available in the State School Fund after the allocation of the basic aid.

> "No state equalization aid shall be allowed under this article, during the Fiscal Year 1950-51, or during any subsequent fiscal year unless there shall have been levied, pursuant to Division 3 of this code, for such district during the preceding fiscal year a tax not less than that set forth in Article 9 of this chapter for the district, and no district which has met the requirements of this section and is otherwise entitled to state equalization aid shall be denied such aid."

This provision has the effect of making the state equalization aid program a "conditional grant in aid," for the local district is required to levy a minimum tax rate before it is entitled to the receipt of state funds. It would be fully effective in this respect, of course, only if it could be assured that assessments were equalized throughout the State.

It is clear that the state equalization aid is designed to give additional assistance to the "poorer" school districts. A prerequisite to the granting of such equalization aid is proof that the basic aid and the computed district aid are, when added together, less than the foundation program shows to be desirable. But the "poverty" of a school district is indicated, for these purposes, by the assessed value figures that enter into the computation of the district aid. The lower the assessed valuation of property within any given school district, the lower will be the computed district aid. With a given basic aid figure and a given foundation program, the lower the district aid for the school district the higher the state equalization aid. In view of the fact that in any fiscal year there is only a limited amount of money that may be apportioned from the State School Fund for equalization aid, a motive is immediately created for a competitive underassessment by the counties of the State. At the same time, of course, the county may maintain its own revenues, and the school districts may retain their rights to receive state equalization aid, by applying a relatively high tax rate to the low assessed valuations, subject only to the maximum rate limitations which may face the various jurisdictions. The motive for competitive underassessment is thus quite different at the present time than it was in the period before the "separation of sources" introduced by the constitutional amendment of 1910. In the earlier period the motive for competitive underassessment took the form of a competition among the counties to reduce the liability of county property owners under the state property tax levy. In the present period, the motive takes the form of a competition among the counties to increase the state equalization aid for the school districts in the county. The earlier situation was clearly one that involved the equitable operations of the property tax itself. In the present situation, the equity issue involved is that which relates to the fairness of the distribution of state funds. Both the past and the present situation are in conformity in that they require an equalization of assessments on an intercounty basis, although the solution to the past problem had to develop within the property tax structure itself, while the solution to the present problem *could* take the form of a change in the formula for the allocation of the State School Fund.

Somewhat similar problems of intercounty equalization are created by the present statutory relationship between property assessments and other forms of state aid. State grants for aid to the needy aged, blind, and children are similar to the program of state equalization aid under the allocation of school funds in that they are made only when the potential recipient can prove his eligibility in terms of the assessed value of the real property which he owns. State aid is not forthcoming if a stipulated maximum of assessed valuation is exceeded. This may or may not be represented as a *motive* for the assessor to underassess the property of such potential recipients and thus to depress the ratio of assessed to market value for the county as a whole, but the *effects* of generally low assessment levels for some counties are clearly in the nature of an inequitable allocation of state funds for these purposes.[25]

THE 1949 EQUALIZATION LAW AND SUBSEQUENT EVENTS

The last equalization orders issued by the State Board of Equalization prior to the 1949 equalization law applied to the assessments for the year 1937. At that time the board claimed to be assessing public utility property at 50 percent of its market value and applied, in each of the three years of 1935, 1936, and 1937, across-the-board percentage adjustments in an attempt to obtain both intercounty equalization and equalization as between public utility assessments and the assessments of common property. At the time there was little attempt by the counties whose tax bases were increased by these equalization adjustments to compensate with lower tax rates, although this clearly could have been done with no damaging effects upon county revenues. As a result, the equalization orders were directly related to increases in the total tax burden in many counties, and, although the State Board of Equalization had no jurisdiction over the tax rates, strong criticism was directed against the board for the unfortunate results. In addition, there was a feeling that the across-the-board adjustments involved hardships for some property owners within the counties whose assessment ratios had been raised. This, it was felt, was a result of the fact that there had been little attempt at intracounty equalization prior to the over-all adjustments. Once again, of course, the State Board of Equalization could not be held responsible for this failure of intracounty equalization, for the board was prohibited by court interpretations of the California Constitution from issuing equalization orders that were concerned with anything less than the entire common property roll for a given county. The criticisms directed against the State Board of Equalization, combined with the fact that the board was composed of officials elected by the voters of the State, must be interpreted as having been powerful deterrents to the issuance of further equalization orders. It is this situation which, in large measure, explains the failure of the State Board of Equalization to do anything but fulfill the formal requirements of the California Constitution by declaring, in each of the years between 1938 and 1949, that all property assessments were equalized as assessed.

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[25] Other problems of a similar type relating to the pattern of allocation of state funds are treated in Davisson, M. M., and Schmelzle, W. K., *op. cit.*, p. 224.

The year 1944 introduced a major change in the methods by which school funds were apportioned to local districts.[26] It was in this year that the apportionment formula first made use of the assessed valuation of the property within the districts for the determination of the State Equalization Aid. With this important change came a real need for an intercounty equalization of assessments and the stage was set for the equalization controversy that was later to develop. The steady increases in the level of state aid granted to local districts for school purposes that have taken place since this change in 1944 have merely served to dramatize the equalization problem that was created with the alteration in the method of apportioning these funds.

The years of the second World War and the immediate postwar period were years of great activity in California real estate and tended to bring about marked distortions in the pattern of assessed valuations throughout the State. In part, this activity reflected the wartime inflationary forces that were at work in the entire economy; in part, it reflected the great influx of population to California; in part, it reflected the rapid industrial expansion that took place during the war and that, in many areas of the State, continued and increased in the postwar years; in part, it reflected the urbanization of many previously rural areas. But whatever the causes, there was a growing feeling that the practices of local assessors had not been such as to make assessments keep pace with the rapid changes in the property values of the period. It appears, in the first place, that many local assessors approached these inflated values with an idea of their "artificiality." Fearing a possible collapse of these values in the near future, and recalling only too clearly the large number of property tax delinquencies that were associated with the relatively high assessment ratios in the depression years of the 1930's, many assessors were reluctant to increase assessments in proportion to the increase in current values. Of course, to the extent that this rationalization was advanced, it was as much a criticism of the budgetary process and the inflexibility of property tax *rates* as it was a criticism of the assessment process and the inflexibility of the tax *base*. Other assessors, however, were not willing to admit the validity of the criticisms, and claimed that there was no evidence of widespread underassessment in the several counties of the State. As a subsidiary argument, many assessors claimed that the Valuation Division of the State Board of Equalization was not assessing the property of public utility enterprises at 50 percent of market value but at something substantially less than 50 percent. For the most part, the allegations of the assessors were supported by statements to the effect that the local assessor would have placed much higher market value figures on the public utility properties within his jurisdiction if he had been responsible for the assessment of these properties.

Perhaps the most significant element in the charges and counter-charges during this period was the absence of any large body of factual evidence to support one or the other argument. Nevertheless, the demands for improved equalization of assessments continued, and in January, 1949, a bill was introduced into the Assembly to provide for such improvement. This was Assembly Bill 2027.[27] This bill was designed to add a new chapter to the Education Code and to require an equalization of assessments for purposes of applying the formula for the allocation of school funds. The attitudes regarding equalization of property assessments that had become common by 1949 are clearly indicated in the following extract from Assembly Bill 2027:

> "There is an inequality in the apportionment of schools funds based on the assessed valuation of property in each school district which arises from the use of such basis without a standard for determining the market value upon which the assessed valuation is based. Assessment practices vary widely from county to county, with the result that some school districts receive unmerited aid depending upon the county within which they are situated. Other school districts are placed at a disadvantage due to the assessment practices of the county within which they are situated and are thus unable to be judged on a basis equal to that of other school districts. There is, therefore, a need for the determination of market value of taxable property by one standard rather than by many in order to insure that all school districts are treated equally in determining the amount of allocations of state funds. There is, furthermore, a need for allowing a raising of the maximum tax rates for school district purposes in order to enable school districts to help themselves when the assessed valuation of property within the school district is unfairly low as shown by a comparison of the total market value of property in that district with other districts."[28]

In its original form, the bill provided for an equalization of assessments for the sole purposes of the allocation of school funds to local districts. It was soon obvious, however, that serious constitutional issues would be involved if an attempt were made to implement these provisions for purposes of the allocation of school funds but not for purposes of the administration of the property tax. Yet the State Board of Equalization might be expected to exhibit the same reluctance to issuing equalization orders for property tax purposes as it had since its unfortunate experiences in the three years 1935, 1936, and 1937. The solution to this difficulty consisted of a series of amendments to the original Assembly bill to extend its applicability to the problem of equalization for property tax purposes. With these amendments the bill was passed unanimously by both houses of the Legislature and became Chapter 1466 of the California Statutes of 1949.

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[26] The historical changes in the techniques of apportionment of school funds are summarized in the *Report of the Senate Interim Committee on State and Local Taxation*, Part One, "The Costs of Selected Governmental Services in California," 1949, pp. 311-319.

[27] The substance of this bill is described in some detail in Davisson, M. M., and Schmelzle, W. K., *op. cit.*, pp. 225, et seq.

[28] Assembly Bill 2027, Section 3.

The Statutes of 1949 represented an attempt to write further administrative instructions into the equalization legislation and to provide a definite legislative mandate for the State Board of Equalization. The relevant sections of the Revenue and Taxation Code, as amended by the Statutes of 1949, were included in the early portions of the present chapter. According to these sections of the code, the State Board of Equalization was to conduct a sample survey of common property in every county in the State and determine an average ratio of assessed to market value for the three classes of property, land, improvements, and personal property in each of the counties. The board was to make similar computations for the State as a whole, and to determine the state-wide average ratio of assessed to market value. The actual equalization procedures were broken into two parts, the one to relate to any county ratio that was found to be within 10 percent of the state-wide average ratio, and the other to apply to any county ratio that was found to be beyond 10 percent of the state-wide average ratio. The first of these provided a definite procedure and presented no alternative to the State Board of Equalization. Whenever the ratio of assessed to market value determined by the board was within the 10 percent tolerance of the state-wide average ratio, the board was required to adjust the assessment on state-assessed property (public utility property) to conform to the ratio of the county. This step would, of course, equalize the ratios of assessed to market value for state-assessed and locally assessed property in that county, although it would still permit a variation in ratios as between counties within the 10 percent tolerance range. In those cases in which the board found the ratio to be beyond the 10 percent tolerance of the state-wide average, a choice was presented in the equalization procedures specified by the Revenue and Taxation Code. The board could, once again, adjust the assessment of public utility property to conform to the ratio of assessed to market value determined for that county, or the board could adjust the assessment levels of each of the counties involved to conformity with the state-wide average ratio of assessed to market value and, of course, adjust public utility assessments to the same conformity. If the board were to choose the first of these alternatives for those counties where the ratios of assessed to market value were found to be beyond the 10 percent tolerance there would be no intercounty equalization, although there would be an equalization of assessments as between public utility property and common property within those counties. If there were no other equalization provisions in the law this alternative would still permit a "misallocation" of state funds for school and other purposes. But the Revenue and Taxation Code made provisions for an intercounty equalization for purposes of such allocations in Section 2002, by which there was to be an adjustment to the equalized roll certified to the Governor whenever an allocation of state funds was based upon assessed values. In effect, the Revenue and Taxation Code (as amended by the Statutes of 1949) recognized the fact that intercounty equalization is required only because of the nature of the pattern of allocation of state funds, and not for purposes of property taxation as such.

As pointed out earlier in the present chapter, the provisions of Chapter 1466, Statutes of 1949 were to take effect on September 2, 1950 to be operative with respect to assessments made as of the first Monday in March, 1951. To enable it to perform the functions required by the new laws, the State Board of Equalization requested, through the Executive Budget, an increase in the staff of the Division of Assessment Standards by the addition of approximately 25 appraisers to carry out the sample survey on an "adequate" basis throughout the State. The additional appropriation would have amounted to approximately $217,000, and, as such, was approved by the Assembly. However, the Senate deleted this item from the budget and it was finally removed in free conference. The State Board of Equalization was now faced with the necessity of carrying out its assigned duties with approximately one-third of the appraisers which it considered essential to the task. The state-wide sample was consequently reduced from the 22,500 parcels which the Division of Assessment Standards considered to be "adequate" to approximately 2,200 parcels. The latter figure represents approximately $\frac{1}{20}$ of 1 percent of the total number of parcels of real property estimated to be in the State.

Shortly after the passage of the Equalization Law of 1949, doubts arose as to the adequacy of the law. Fears were expressed that the equalization procedures would have the effect of substantially reducing the property tax liability of the public utility enterprises in the State at the expense of the owners of locally assessed property and that this would result in severe dislocations for many counties—particularly those counties whose assessment rolls consisted in large measure of public utility assessments. These objections led to the passage, in the legislative session of 1951, of Senate Bill 919, an act to amend the Statutes of 1949 to delay the effective date of the law for two years until the necessary factual information could be obtained. This meant that the provisions of the law would be operative for the first time with respect to assessments made as of the first Monday in March, 1953. The bill was sent to the Governor and signed by him at approximately 6 p.m. on July 16, 1951, and at 8 p.m. on the same day it was filed with the Secretary of State and designated as Chapter 1554, Statutes of 1951.

In the meantime, the State Board of Equalization had proceeded on the assumption that the Statutes of 1949 were in effect, and had conducted a survey of common property assessments throughout the State and determined a set of county ratios of assessed to market value together with a state-wide average ratio of assessed to market value. On the third Monday in July (July 16, 1951) the board adopted a resolution establishing these ratios and, at 4.45 p.m., deposited in the United States Post Office at Sacramento notices of this determination. These were addressed to each county assessor and the clerk of the board of supervisors of each county in the State. It was approximately 1 hour and 15 minutes later that same day that the Governor signed Senate Bill 919 which had the effect of postponing such action by the State Board of Equalization until 1953. The situation was understandably confused at this point and the State Board of Equalization requested an opinion from the Attorney General's Office regarding the law applicable to the board's equalization duties under Sections 9 and 14 of Article XIII of the California Constitution. On August 1, 1951, the Attorney General issued his opinion to the effect that Chapter 1554, Statutes of 1951, suspended for two years the operation of Chapter 1466, Statutes of 1949 and that "the law governing the equalization and assessment functions of the State Board of Equalization during the interim is the law as it existed prior to the enactment of Chapter 1466, Statutes of 1949."[29] On the strength of this ruling, the State Board of Equalization declared that the county rolls were officially equalized and that it would make no change in the public utility assessments. The latter were declared to be assessed at 50 percent of market value and, in view of the declaration of equalization, it was presumed that all other property in the State was assessed at 50 percent of market value.

In the Fiscal Year 1951-52 the Division of Assessment Standards of the State Board of Equalization carried out a similar survey to that conducted in the previous year, now operating under the general instructions of Section 9 of Article XIII of the California Constitution. In view of the staff limitations with which the Division of Assessment Standards was faced, it concentrated its attention upon those counties whose ratios of assessed to market value had been low in the survey conducted in the previous year. There had been 14 counties which, according to the published findings of the State Board of Equalization in 1951, had been more than 15 percent below the state-wide average ratio of assessed to market value. The division found that eight of these had increased their assessments sufficiently to place them within the arbitrarily selected 15-percent tolerance of the state-wide average. The state-wide average itself was assumed to be that published in the 1951 survey—namely, 40 percent. The six remaining counties out of the 14 counties examined in the 1952 survey, together with the computed percentages below the state-wide average for each, were as follows:

County	*Percentage Below State-wide Average*
Humboldt	21
Modoc	36
San Bernardino	26
San Luis Obispo	37
Stanislaus	20
Tulare	25

On July 22, 1952, the State Board of Equalization directed these six counties to show cause why the ratio of assessed to market value for each should not be raised by an amount required to bring the counties within the 15 percent tolerance of the assumed state-wide average ratio. This directive was expressed in terms of percentage increases to be applied to two categories of property on the assessment rolls, land and improvements. The percentage increases in each of these categories for each of the six counties involved in the "show-cause" directive were as follows:

	Percentage increase required to bring county assessment within 15 percent of the state-wide average	
County	*Land*	*Improvements*
Humboldt	18	54
Modoc	150	54
San Bernardino	29	38
San Luis Obispo	90[30]	67
Stanislaus	29	43
Tulare	74	21

The hearings on this "order to show cause" were held in Sacramento from August 4, 1952, to August 6, 1952, inclusive. On August 5, 1952, during a special session of the Legislature, Senate Concurrent Resolution No. 11 was adopted by the Senate to declare that it had been the intent of the Legislature "by the enactment of Chapter 1554 of the Statutes of 1951 to defer equalization of assessments by the State Board of Equalization until 1953 and to postpone until 1953 the use of any material collected by the survey authorized by Chapter 1466 of the Statutes of 1949 * * *"[31] The State Board of Equalization, on August 7, 1952, decided not to issue the equalization orders that had been contemplated, giving as its reason the fact that the board was unable to collect sufficient evidence in its survey to indicate clearly the pattern of assessments throughout the counties of the State. Once again, the rolls of locally assessed property and state-assessed property were formally declared to be equalized.

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[29] Attorney General's Opinion, No. 51/150, August 1, 1951.

[30] On Tuesday, August 5, 1952, during the hearing of San Luis Obispo County on the order to show cause, the State Board of Equalization announced that additional information had come to light and that its earlier estimates had been revised. Under the revised computations, land in San Luis Obispo County would have to be increased by 50 percent rather than by 90 percent.

[31] Senate Concurrent Resolution No. 11.

CHAPTER II

SCOPE AND METHOD OF THE PRESENT STUDY

Two basic issues relating to the need for equalization of property assessments in California were discussed in Chapter I. The first of these was concerned with the relationship between the theoretical concept of equity in the property tax structure and the administrative act of equalization: the second was concerned with the relationship between equalization and the pattern of state aid to local districts and to other recipients of state funds. Although in Chapter I each of these issues was raised merely as an introductory question, with little attempt at detailed analysis, it was found that, taken in combination, they indicate a clear need for three kinds of equalization within the present constitutional and statutory framework. A restatement in summary form of these three kinds of equalization will help to indicate the limited scope of the present study:

1. *Intracounty* equalization (or, more generally, *intrajurisdictional* equalization) was found to be an inevitable component of the property tax. It follows that, whenever assessments within a given county are *not* equalized, the equity problems which arise can be "solved" only by a careful utilization of the equalization machinery or by an abandonment of the property tax itself.

2. The need for an equalization of assessments as between *public utility property and common property* was found to be somewhat uncertain on equity grounds, although the fact that the former type of property is subject to state assessment while the latter is subject to local assessment clearly implies a need for interjurisdictional equalization at this level of the administrative process. Theoretically, of course, the interjurisdictional character of the problems associated with a *lack* of equalization as between state-assessed property and locally assessed property could be "solved" by "localizing" all public utility assessments or by "centralizing" all common property assessments. However, if the equity argument were still found to have real content as applied to public utility enterprises, the equalization problems would merely be transferred from the interjurisdictional level to the intrajurisdictional level if this "solution" were adopted. If, on the other hand, the equity argument were found to have no content as applied to public utility enterprises, the equalization problems could most easily be "solved" by the complete exemption of regulated enterprises from the property tax and, perhaps, the subjection of such enterprises to a separate levy the burdens of which were in no way related to the burdens of the property tax upon other taxpayers.

3. *Intercounty* equalization was found to present no problems at all from the point of view of the equitable operation of the property tax. The need for this kind of equalization was found to arise entirely from the existing constitutional and statutory provisions for the allocation of state funds. Thus, the problems associated with a *lack* of equalization at the intercounty level could most easily be "solved" by removing them, and this, of course, could be accomplished by changing the basis upon which such state funds are allocated to local districts and to other recipients.

It is obvious from this brief statement that the discovery of a lack of uniformity of assessment ratios is not always to be taken as automatic proof of the need for a purification of the equalization techniques. There are, in other words, alternative solutions, and, except for the intracounty case, these alternatives may be introduced without disturbing the basic structure of the property tax. In the case of intracounty assessments, a failure of the equalization step is a measure of the failure of the property tax itself. In the other cases, however, a failure of the equalization step may merely be a measure of the failure of the superstructure erected upon the property tax foundations.

The discussion of these points in Chapter I was designed merely to indicate the existence of a problem and the existence of alternative solutions. It was not designed to indicate a preference for one or the other of these alternative solutions. The *significance* of the board policy alternatives to equalization cannot be determined without a much more detailed analysis than was undertaken in Chapter I. If, for example, it were found that there existed a marked disparity between the assessments of public utility property and the assessments of common property throughout the State, the question would immediately arise as to whether the solution should be in terms of better equalization procedures or the exemption of public utilities from the payment of property taxes and the substitution of a *completely separate* levy. The latter solution might involve a return to a gross receipts tax upon public utilities, similar to that in use between 1910 and 1933, but without the equalization overtones of the gross receipts levy of that period. But these questions could not be satisfactorily answered until the entire problem of government policy with respect to regulated enterprises had been examined, both with respect to the purposes of that policy and with respect to the economic effects of that policy. Such analyses of purposes and economic effects would further require an exploration of the whole question of the shifting and incidence of any taxes imposed upon public utility enterprises. In like manner, if it were found that there were a marked disparity between the level of common property assessments in one county and the level of common property assessments in another county, the question would arise as to whether the solution should be in terms of better intercounty equalization procedures or a change in the law by which state funds are allocated to local districts. Here, too, the question of alternatives could not be answered until the entire program of state aid to local districts had been subjected to analysis and until alternative allocation techniques had been suggested. It is true, of course, that the same kind of statement might be made with respect to *intra*county assessments. If it were found, for example, that there were a marked disparity between the individual assessments within a given county, the solution might be in terms either of a purification of intracounty equalization or of a deletion of the proprety tax from the fiscal structure of the State. It seems clear, however, that the alternative solution available in the case of intracounty assessment problems is of quite a different order of significance than the alternatives available in the other two cases under discussion.

The present study is much more restricted in its scope than the statement of these broad alternatives would suggest. Its sole concern is with the question of whether assessment ratios in the State of California show similarity or diversity, and, if the latter, the extent of the diversity. In this study there is no attempt to come to grips with the question of whether the comparison of assessment ratios has any real and universal significance for property tax problems. The discussions of Chapter I indicated that this latter question represents a fruitful and even essential area of investigation. It was pointed out in those discussions that equalization is merely the final administrative step prior to the application of the tax rates. It is clear that it can be a step of great importance or a step that is concerned purely with the formal satisfaction of the existing statutory requirements, depending upon the manner in which the more basic questions are answered. But beyond emphasizing this reference, the present discussion takes no further account of these over-all problems. In effect, the broad alternatives mentioned above are bypassed by a set of assumptions calculated to isolate the more specific problems of equalization. It is assumed, in the first place, that the property tax itself *is* a justifiable part of the fiscal structure of the State and that the bifurcated administration of assessments as between a state agency and the local agencies *is* both necessary and desirable. In the second place, it is assumed that there is no basic difference between public utility enterprises and other taxpayers, other than the fact that the property of the former is assessed by the State Board of Equalization while the property of the latter is assessed by the local assessors. This, in turn, implies that a discussion of equalization at this level of analysis is also a discussion of equity within the structure of the property tax. The third over-all assumption is that the present system of allocating state funds on the basis of the assessed valuation of the property either of the individual recipient or within the boundaries of a given local district *is* an essential part of the equalization problem. The removal of all these problems by the assumption that they do not exist should not, of course, be taken to indicate their lack of importance. The assumptions represent merely an analytical simplification. Of course, they also have the effect of emphasizing the importance of all three types of equalization—intracounty equalization, intercounty equalization, and equalization as between public utility assessments and common property assessments.

This report is thus concerned with the present status of assessment equalization in the State of California and represents an attempt to collect and interpret those facts which might be useful in the formulation of legislation with respect to equalization *per se*. The study has been developed with a full realization that the area of investigation is severely circumscribed by the assumptions discussed above, but it is also recognized that the facts presented are essential to legislative decision and that they have been largely unavailable in the previous discussions of the equalization problem.

But the present study has a further limitation of scope beyond the restrictions mentioned above. The specific reference for the study is, of course, the 1949 equalization law and the Statutes of 1951 that had the effect of delaying the effective date of the 1949 law until the first Monday in March, 1953. In Chapter I it was shown that the 1949 equalization law was concerned with equalization at only two levels of its administration in California rather than with the three levels discussed above. The law was an attempt to write legislative instructions for the administration of equalization by the State Board of Equalization. By the California Constitution and by other sections of the Revenue and Taxation Code, the State Board of Equalization is concerned only with intercounty equalization (in terms of the three broad classes of property, land, improvements, and personal property), and with equalization as between state-assessed property and locally assessed property. There was no mention, in Chapter 1466 of the Statutes of 1949, of the problem of *intracounty* equalization. As a result, *the present study is not directly concerned with the problem of intracounty equalization and is, except for incidental reference, restricted to an analysis of intercounty equalization and equalization as between state-assessed property and locally-assessed property*. Certain clear inferences can be drawn regarding the status of intracounty equalization from the facts presented in subsequent chapters, but the limitations of time and resources available for the study, and the immediacy of the other problems, prevented a full exploration of these intracounty problems. The importance of such an exploration must nevertheless be emphasized at this point. It was stated in Chapter I and in the opening remarks of Chapter II that the one equalization problem *inevitably* associated with the property tax is the problem of intrajurisdictional equalization. In this sense at least, an equalization of assessments *within* the counties of the State would appear to be the most important single equalization problem, and its omission from a study of this kind must be interpreted as a severe limitation to the significance of the data presented. Furthermore, from the point of view of equalization policy, the success or failure of the other two forms of equalization may be said to depend upon the success or failure of intracounty equalization. Any attempt to adjust the superstructure of interjurisdictional equalization *can* have the effect of increasing rather than decreasing the inequities of the property tax if the foundations of intracounty equalization are insecure. The bulk of the present report is based upon the assumption that all property on the local roll of a given county is assessed at the same ratio of assessed value to market value and all policy implications which may be drawn from the facts presented must be contingent upon a proof of the accuracy of this assumption. Certain indications are presented in later chapters of this report that the assumption of perfect intracounty equalization is not only tenuous but quite false. The present warnings are calculated to prevent the assumption from being misleading as well as inaccurate.

There is one departure from the scope of the study suggested by the preceding comments. Chapter III of the report describes the equalization programs in operation in some of the other states in the United States and is based upon data collected by the Bureau of Public Administration of the University of California. In addition, Chapter I included a brief discussion of the manner in which the equalization problems have been treated in the historical development of California's fiscal structure. A more complete analysis of the legal history of the assessment and equalization problems is provided in Part Four of the *Report of the Senate Interim Committee on State and Local Taxation*, 1953, entitled "A Legal History of Property Taxation in California, Division III. Assessment and Equalization of Property." A reference to both of these analyses will provide both an historical and a spatial comparison for the present equalization problems in the State of California.

The limitations described above come from the restricted *scope* of the problems selected for study in this report. Even more severe limitations, however, come from the *methods* which it was necessary to adopt in the study. Although the question of whether or not assessments in the State can be said to be uniform is but a small part of the total equalization problem, it is a question that nevertheless does not lend itself to quick and easy answers. The time and resources available for this study were not such as to permit an exhaustive analysis of even the relatively small problem mentioned above. As a result, the answers which are supplied in this report are more accurately described as tentative and suggestive rather than as conclusive and definite.

As pointed out in Chapter I, a study of the equalization process must involve a duplication of appraisals and a comparison of these appraisals with the assessed valuations placed upon the same parcels of property at the same moment of time. In view of the fact that assessments in California are allocated both to a state agency and to a group of local agencies, the present study is logically organized into two main divisions. Division III is concerned with the valuation of public utility property by the Valuation Division of the State Board of Equalization, and concludes, in Chapter XIV, with a brief critical discussion and the development of some tentative assessment ratios for these enterprises. Division IV is concerned with the valuation of common property by the local assessors, and concludes with a report of some tentative assessment ratios for this type of property. The specific difficulties encountered and the kinds of analytical solutions adopted in each of these areas are described at length in the first chapters of each of the relevant divisions, Chapter IX for public utility valuations and Chapter XV for common property valuations. A few general comments might be made at this point, however, with a view to exposing the limitations of the analyses and in an attempt to underscore the tentative character of the results.

The most severe difficulty encountered in the analysis of public utility valuations for property tax purposes was, as might readily be imagined, the extreme complexity of the property. It was clearly impossible to attempt a complete valuation of a series of enterprises (or even of any one company) from beginning to end and to compare the results with those of the Valuation Division of the State Board of Equalization. As the best alternative, the approach adopted for this study involved an intensive investigation of the procedures of the Valuation Division for a selected number of public utility enterprises of various types and a critical analysis of the methods and the results. It was, in other words, more an investigation of the present valuation techniques than an independent determination of values. An attempt was made (and the results are shown in Chapter XIV) to determine the values of these selected enterprises on the basis of the raw data supplied by the Valuation Division, but these figures should be interpreted more as illustrative of the theoretical argument and the theoretical criticism of the Valuation Division's techniques than as fully supportable findings of values or assessment ratios. This material should be used in conjunction with the theoretical discussions of Division II, in which an attempt is made to describe some of the important theoretical elements in the valuation of public utility property. Although Division II is designed to be applied primarily to the valuation of public utility property, much of the discussion is sufficiently general so that it may be applied to the valuation of other property as well.

The activities of the Valuation Division of the State Board of Equalization are described, in Division III, for six public utility companies. These six companies represent three important classes of utility enterprises in the State. The Pacific Telephone and Telegraph Company and the Kern Mutual Telephone Company represent the telephone group; the Pacific Gas and Electric Company and the San Diego Gas and Electric Company represent the gas and electric group; and the Atchison, Topeka and Santa Fe Railroad Company and the San Diego and Arizona Eastern Railroad Company represent the railroad group. No attempt was made to sample the other types of utility enterprises mentioned in Article XIII, Section 14 of the California Constitution as subject to assessment by the State Board of Equalization. This omission involves such enterprises as private car companies, express companies, intercounty pipe lines and so on, and is rationalized purely on the grounds of limited resources and the relative unimportance of such property on the state-assessed roll.

Although the analysis of the techniques of the Valuation Division of the State Board of Equalization with respect to the six companies selected for the sample is developed with a great deal of intensity and rather fully documented in Division III of this report, there are, nevertheless, several steps in the assessment process that require much more detailed analysis. The most important of these is the step by which the value of the enterprise as such is allocated to the several taxing districts within the State in which the property of the company in question lies. This intrastate allocation process is described in Chapter XIII, but, in view of the importance of this process, it is felt that the detail is insufficient. This insufficiency is, in part, the result of a lack of time, and, in part, the result of the enormous mass of data that would have to be reproduced to illustrate the process. Other phases of the valuation process, although subject to discussion, are treated lightly in the chapters that deal with the techniques of the Valuation Division. This would apply to such things as the computation of the capitalization rate in the determination of the earnings evidence of value, the computation and use of the cost data, the valuation of the nonoperative property, and so on. For the most part, there was no attempt to make use of a direct appraisal of particular items of public utility property. In the first place, of course, it would be quite impossible to carry out any large number of such appraisals without recourse to a large and highly competent appraisal staff fully acquainted with the very technical problems of appraising the complex property that makes up a public utility system. But even more important, it is claimed in the theoretical chapters of Division II of this report that such piecemeal appraisals have, with one possible exception, little direct bearing upon the value of public utility property for tax purposes. The one possible exception relates to the land items of property. An attempt was made, although on an extremely limited scale, to test some of the assessments for specific parcels of land owned by the six companies in the sample. The results are described in Chapter XIV.

The most severe difficulty encountered in the analysis of common property assessments quite naturally came from the large number of parcels of property subject to local assessment and the great diversity of types within the ''common property'' category. Obviously, if an attempt was to be made to determine over-all ratios of assessed to market value for each county and for the State as a whole by the appraisal device, it would be necessary to make use of a highly restricted sample of the total parcels of common property in the State. (The total number of parcels of real property on the local rolls is estimated, by the State Board of Equalization, to be in excess of 4,500,000.) It was recognized, of course, that the validity of the results which would come from such a sample would be closely correlated with the size of the sample and the care with which it was selected to represent the various types of property in the State. In view of the fact that the staff of the committee did not have at its disposal sufficient data to permit the determination of a state-wide sample that would show a satisfactory geographical distribution and a satisfactory distribution by types of property, it was finally decided to make use of the sample already prepared by the Division of Assessment Standards of the State Board of Equalization in its assessment survey of 1950-51. As reported in Chapter I, this sample included about 2,200 parcels of real property, or approximately one-twentieth of 1 percent of the total parcels of real property in the State.[1] In the actual appraisals, the committee was fortunate in securing, through the assistance of a State-wide Appraisal Steering Committee appointed to advise and consult with the Senate committee, the services of some 560 realtors and appraisers throughout the State. These realtors and appraisers were constituted an Appraisal Advisory Committee to the Senate Interim Committee on State and Local Taxation. The members of this advisory committee contributed much time and effort to the Senate committee in conducting the appraisal survey, the results of which are reported in Division IV of this report. It was recognized that implicit in the use of a large number of individuals to carry out the sample appraisals was the danger that several different concepts of value might be utilized. Attempts were made, through more or less detailed instructions, and through various statistical tests, to minimize this danger, but, of course, absolute comparability cannot be claimed. It is nevertheless felt that the appraisal figures so collected are of a high order of acceptability. It was also necessary, in the appraisal survey, to delete some parcels of property from the sample originally used by the Division of Assessment Standards of the State Board of Equalization. These deletions were necessitated by the fact that an appraisal of the parcels in question would have involved great technical difficulty and an undue amount of time and effort would have been required to obtain accurate appraisal figures.

It is important to note at this point that the use of the sample prepared by the Division of Assessment Standards in no way represents an investigation of the survey conducted by the Division of Assessment Standards in 1950-51. As is shown in Chapter XVII, the basic comparison for purposes of this report is that between the appraisal findings of this committee as of the first Monday in March, 1952, and the assessed value figures as of the same date. A comparison of these appraisal findings with those of the State Board of Equalization for the previous year is incidental to this major purpose. It is nevertheless true, of course, that any deficiencies which were associated with the sample as used by the State Board of Equalization also are associated with the sample used by the Senate Interim Committee on State and Local Taxation, and serve to limit the accuracy and the completeness of the findings reported in Division IV.

The methods of analysis applied to common property assessments differ in one important respect from those applied to public utility assessments. There was no attempt to explore the *techniques* of valuation used by the 58 county assessors in the same way that there was an attempt to explore the *techniques* of valuation used by the Valuation Division of the State Board of Equalization. A partial substitute was provided by an analysis of a series of studies and recommendations made by the Division of Research and Statistics and the Division of Assessment Standards of the State Board of Equalization with respect to the organization and operations of the county assessors' offices. But it is still true that the analysis of the assessment practices of the local assessors was largely neglected. Once again, this neglect is explained by a lack of time and a lack of resources. There is much that can be discovered by such an exploration, however, that cannot be discovered by the sampling of a small percentage of the total parcels of property in any one county for purposes of appraisal, and the lack of such an exploration is felt to be a severe limitation to the findings of this committee.

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[1] The character of this sample and the nature of its limitations are more completely described in Chapter XV.

A further methodological limitation is involved in the omission of all reference to personal property in the sample appraisals of common property. This is a particularly significant omission inasmuch as it prevents a complete comparison of the common property ratios with the ratios for public utility enterprises. For the public utilities, the personal property is represented by such things as telephone poles and transmission poles of all types, wire, cable, connecting equipment, and so on. Since these utility enterprises are subject to public regulation, they are required to maintain a careful account of the amount of such equipment which they own or use, and these records are, of course, available to the assessor for tax purposes. Doubt has often been expressed, however, that the same ease of discovery by the assessor attaches to the personal property of other taxpayers, particularly the personal property associated with residential property. If this property were not even placed upon the tax rolls, the ratio of assessed to market value for common property would, of course, tend to be lower, for this reason alone, than the ratio of assessed to market value for public utility property. It must be noted that this is not here advanced as a *conclusion,* but merely as a possibility that has often been advanced in discussions of the assessment of personal property. The point of the present remarks is that it is a possibility that it was impossible to explore in this study.

These then, appear to be the most important limitations of the present study of assessment equalization in the State of California. They are limitations which come from the restricted scope of the study and from the attenuated methods necessitated by the magnitude of the problem. A summary of these limitations is contained in the following list of topics which it is felt must be covered, in addition to those treated in this report, before a truly satisfactory picture of the problems of assessment and equalization in California can be provided.

I. An enlargement of the *scope* of the study in the following directions:
   A. A study of the economic effects and the purposes of the property taxation of public utility enterprises as related to the economic effects and the purposes of the regulation of public utility enterprises;
   B. A study of the pattern of allocation of state funds for various purposes in an attempt to discover whether the relationship between such allocations and assessed valuations is desirable or whether it is a costly and dispensable "luxury;" and
   C. A study of the status of *intracounty* equalization throughout the State.

II. An improvement in the *methods* used in the present report, the improvements to be in the following directions:
   A. Assessment of public utility property:
      1. A complete valuation of several representative public utility enterprises, with particular emphasis upon land appraisals;
      2. A more *extensive* investigation of the techniques of the Valuation Division of the State Board of Equalization, in terms of an analysis of other categories of utility enterprises; and
      3. A more *intensive* investigation of the techniques of the Valuation Division, with particular reference to the following:
         (a) The intrastate allocation process as applied to gas and electric companies and to railroad companies;
         (b) The computation of the capitalization rate in the determination of the earnings evidence of value;
         (c) The computation of the factor for income taxes in the determination of the earnings evidence of value; and
         (d) The calculation and use of cost data.
   B. Assessment of common property:
      1. A larger and more representative sample of the locally assessed property in the State, designed to describe both intracounty equalization and intercounty equalization;
      2. An analysis of the *techniques* of valuation used by the local assessors of the 58 counties, similar to the analysis of the techniques of the Valuation Division of the State Board of Equalization included as Division III of the present report;
      3. A specific analysis of the valuation of large industrial and commercial enterprises, designed to yield a comparison of the techniques and the results of the local assessor with respect to this type of property and the techniques and results of the Valuation Division of the State Board of Equalization with respect to public utility property; and
      4. A study of the ratio of assessed to market value of personal property.

CHAPTER III

EQUALIZATION IN OTHER STATES

THE EXPERIENCE IN OTHER STATES WITH EQUALIZATION OF LOCAL ASSESSMENTS

During the past decade there has been a definite trend toward increased control and supervision of property tax administration by central agencies of state government. A recent survey indicates that in a majority of states statutes specifically provide that a designated state agency shall exercise general supervisory powers over the assessment function and the local officials concerned with its administration or such authority, although not specifically stated, is implicit in other powers granted state agencies.[1] Efforts by central agencies to improve assessment administration generally involve (1) measures directed toward better original assessment—i.e., creation of larger assessment districts, establishment of minimum standards of competence for assessing officials, in-service training programs, technical assistance in installation and use of adequate maps and soil surveys, and state participation in revaluation projects; and (2) state equalization[2] of the post-assessment type. The present chapter is concerned with the latter procedure of interjurisdictional equalization.

Reasons for the Increasing Importance of Interjurisdictional Equalization

The original purpose of interjurisdictional equalization was to establish a uniform assessment level among local assessment districts before imposition of a state property tax based on local assessed valuations. "In its formative stages the administration of the general property tax was highly decentralized. There was less need of central supervision of assessments during the continuance of the primitive economic and political conditions under which this tax originated. With the increase of movable and intangible wealth, however, the prevention of inequalities among individuals, tax districts and classes of property proved impossible under the locally administered system of uniform taxation. The first significant step toward more efficient administration was the creation of boards of review and equalization. The earliest of such bodies were the local boards created in towns, cities, and counties, with powers intended primarily to be used in checking and correcting evasion and undervaluation. Later came the state boards of equalization, established for the purpose of securing a more equitable distribution of the state tax."[3]

This latter purpose of equalization has become relatively less important as states have diversified their tax systems and reduced their reliance upon the general property tax as a source of state support. But other developments have occurred which create a need for interjurisdictional equalization. In a number of states certain properties, such as those of public utilities, are centrally assessed by a state agency and subsequently certified to local assessment districts for inclusion in their tax rolls to be taxed at local rates. Other states tax certain centrally assessed properties at the average general property tax rate throughout the State. In either case, uniformity in distribution of tax burdens on centrally assessed and locally assessed property requires equalization. Assessed valuations also frequently enter into the formulae by which substantial amounts of state funds are allocated to local governments, either as grants in support of particular functions such as education and welfare or (less frequently) as shares of state collected taxes, and into the eligibility requirements for tax exemption and receipt of various state aids. Finally, the uniform application of tax rate and debt limitations depends upon the extent to which valuations are equalized among jurisdictions. Thus equity in the distribution of the property tax burden, in the allocation of state funds to local governments, in the payment of state aid to individuals, in the granting of tax exemption, and in the operation of tax rate and debt limitations requires equalization of assessments made by numerous independent assessing agencies, even though the State levies no property tax for its own purposes.

Methods of Interjurisdictional Equalization

There are two general methods of interjurisdictional equalization used in the United States: the uniform-ratio and the variable-ratio methods.[4]

The uniform-ratio method involves adjustment of all assessed values to a uniform level of full value or some fraction thereof. The variable-ratio method involves a determination by the state equalization agency of the average ratio of assessed to full value in each assessment district and the use of this ratio in certifying values of state assessed property to local taxing districts, in the allocation of state funds where assessed valuation enters into the allocation formula, and in the fixing of maximum local tax rates. "No local assessment roll is changed, and no compulsion is exerted with respect to local assessment policies. The State adjusts to local practices, not vice versa."[5]

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[1] University of Oklahoma, Bureau of Government Research, *Recent Trends in State Supervision of General Property Assessment,* 1951.

[2] "Equalization" is used here to mean "the changing of assessments *en masse*—horizontal increases or decreases in a whole group of assessments as a result of an order issuing from an agency having jurisdiction over two or more assessment districts" (National Association of Assessing Officers, *Equalization Agencies,* 1940, p. 5). "Review" is used here to mean alteration of individual assessments.

[3] Lutz, H. L., *The State Tax Commission,* 1918, pp. 5-6.

[4] Welch, R. B., "A New Multiple-purpose Equalization Program," *Proceedings of the National Tax Association,* 1949, p. 260.

[5] Welch, R. B., "Practical Means of Strengthening Local Property Tax Administration," *Revenue Administration,* 1949, p. 51.

SURVEY OF STATE EQUALIZATION OF LOCAL ASSESSMENTS

At the request of the committee, the Bureau of Public Administration, University of California, undertook a survey of state equalization of local assessments. This section summarizes the findings of this survey which are presented in greater detail in a bureau publication.[6]

Replies to questionnaires indicate that in 37 states equalization is needed because of state assessment of property which is locally taxed; in 25 states because of the levy of a state property tax on local assessments; and in 24 states because state grants are distributed to local governments by formulae which take into account local assessed valuation. Taken together, 43 states indicate a major need for interjurisdictional equalization.

Of these 43 states, 31 currently engage in some kind of intercounty equalization program. Eight states indicating a need for equalization do not actively exercise any intercounty equalization authority but do have varying degrees of responsibility with respect to individual assessments. Four states indicating a major need for equalization appear to have no review or equalization authority.

Five states indicate no major need for equalization and accordingly have no intercounty equalization programs.

State equalization of local assessments involves two processes: (1) Determination of the assessment level in the jurisdiction involved—i.e., the ratio of assessed to true or market value; and (2) action on the basis of this finding through an equalization order.

The determination of the assessment level, which may be for *all* property within a given jurisdiction or for a particular *class* of property in a given jurisdiction, may be undertaken either by a sampling procedure or a reappraisal of all taxable property within the given jurisdiction or class.

When the sampling procedure is followed, sales data from bona fide transactions or appraisals, or a combination of these, are typically used.

In recent years only a few states have undertaken complete reappraisals, which is both time consuming and expensive. Typically, reliance is placed on sales data and/or limited appraisals, selected to provide a representative cross-section of taxable property. Approximately one-fourth of the 31 states with equalization programs use appraisals and another one-fourth use sales data. The remaining one-half utilize both sales data and appraisals, relying on the latter particularly in the case of areas or classes of property for which sales data do not provide a sufficient sample.

Having determined the ratio of assessed to true or market value for the various jurisdictions and/or classes of property, two methods are available to effect equalization: (1) The state agency may order the local assessor to adjust every valuation (either of all property or of the particular class in question) by a fixed percentage which will bring the valuations into line with the levels prevailing throughout the State. The adjusted assessment roll is then used for all tax purposes, local and state. This is the *uniform ratio* method of equalization referred to above. (2) The state agency may leave the local assessment roll unchanged for local tax purposes, but adjust other factors related to the assessment level—i.e., state-assessed property certified to local tax rolls and state grants-in-aid whose distribution is based on local assessed valuations. This is the *variable ratio* method of equalization.

Of the 31 states engaged in some kind of equalization activity, 20 utilize the uniform ratio method; eight employ the variable method; and in three a combination of the two methods is used.

It would appear that equalization programs vary widely in effectiveness. The survey questionnaires indicate significant differences in the size of staff employed by the various state equalizing agencies and in the frequency and thoroughness of equalization studies.

In 30 states the state agency has an assessment *review* function—i.e., authority to adjust individual assessments within the county. In some instances such an adjustment may be made only on appeal; in others the agency acts on its own motion. Twenty-one of these 30 states exercise intercounty equalization as well as review authority.

Thirty-three state agencies have authority to adjust assessment levels within the county by *class of property*. In 21 states, the state agency has power to adjust assessments by *minor districts* (a district within a county). This practice might be necessitated, for example, by geographical inequalities in the original assessment not satisfactorily adjusted at the county level.

Approximately 80 percent of the states with equalization programs, including all of the variable ratio states (with the possible exception of Oklahoma), are required to publish assessment ratio figures.

Equalization Programs of Selected States[7]*—Illinois and Pennsylvania*

The need for intercounty equalization in Illinois was stated by the Department of Revenue in these terms:

> "There has been discrimination among properties within the same assessment district inasmuch as capital stock and railroad operating property have been assessed by the Department of Revenue at a ratio reflecting the state-wide average level of local assessments; insofar as the assessment ratio (percentage of assessed to true value) in a district differed from the state average, the effect of the tax rate on capital stock or railroad property assessed by the department has varied from the effect on locally assessed properties. In the case of a taxing body situated in two or more assessment areas, property assessed at 50 percent of full value in one district paid twice as much in taxes as property in the same taxing jurisdiction assessed at only a quarter of full

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[6] University of California, Bureau of Public Administration, *State Equalization of Local Assessments*, by Eugene C. Lee, Berkeley, 1953.

[7] See University of California, Bureau of Public Administration, op. cit.

value. Another defect arising from varying fractional assessments lay in the application of statutory tax-rate limits. Local property taxing powers, with some exceptions, were qualified by statutory tax-rate limits prescribing a maximum percentage rate to be extended. Since assessment ratios have varied widely among taxing districts, a maximum tax rate applied to an area with a low assessment ratio yielded less revenue than the same rate as applied to a higher ratio area. A third inequality resulting from under-assessment practices was that state equalization grants for education and assistance for poor relief were unequally apportioned. Schools are assured by statute of certain annual incomes which are to be derived from proceeds of the general property tax levy, a flat grant distributed from the State School Fund, and an equalization grant for educational purposes awarded school districts whose levies are sufficient to produce stipulated qualifying tax rates. If the property levies and flat grants together produce the guaranteed income, no equalization grant is made. If they are not sufficient, the equalization grant is forthcoming to provide the guaranteed income if the local tax rates for educational purposes equal stipulated percentages of the levy. The importance of assessment practices is emphasized again, therefore, since a low assessment ratio has enabled a taxing district to extend lesser amounts locally in order to qualify for equalization grants their districts with a higher ratio of assessed to full value. State poor relief aid produced the same type of inequities since they are apportioned where needed to units with levies sufficient to require extension of a three-mill rate on assessed value. As in the case of school districts, the higher the assessment ratio the greater was the tax extension required in order to qualify. And still another type of inequitable situation resulting from the absence of uniform assessments was that statutory restrictions on local borrowing powers were expressed in terms of the permissible volume of debt as related to assessed valuation. Borrowing policy, therefore, is clearly related to assessment policy. The higher the assessment ratio, the larger may be the amount of debt incurred, and vice versa.'' [8]

The Illinois equalization law of 1945 [9] involves use of the uniform-ratio method. An earlier statute [10] provided that ''The Department [of Revenue] may so lower or raise the total assessed value in any county as returned by the county clerk as shall make the property in such county bear a just relation to the assessed value of property in other counties.'' In 1945 equalization was made mandatory rather than permissive by the following provision:

> ''The Department [of Revenue] shall act as an equalizing authority. It shall examine the abstracts of property assessed for taxation in the several counties as returned by the county clerks and shall equalize the assessments as in this act provided. The department shall lower or raise the total assessed value of property in any county as returned by the county clerk so that such property will be assessed at its full, fair cash value.
>
> ''By means of a comparison of assessed valuations * * * and estimated full cash values established through the analysis of property transfers, property appraisals, and such other means as it deems proper and reasonable, the department shall annually ascertain and determine the percentage relationship, for each county of the state, between the valuations at which locally assessed property is listed by assessors * * * and the estimated full, fair cash value of such property. With the ratio so ascertained and determined for each county, the department shall then ascertain the amount to be added to or deducted from the aggregate reviewed assessment on property subject to local assessment jurisdiction in order to produce a ratio of assessed to full, fair cash value equivalent to 100 percent.'' [11]

Provision was also made for adjustment of tax rate limits to take account of full-value assessments.[12]

In determining the average percentage relationship between assessed and full values of locally assessed property, the Department of Revenue relies primarily upon analysis of bona fide real estate sales supplemented by appraisals. Thousands of real estate transactions are analyzed to determine assessment ratios which are arranged to conform with the assessors' classifications and a median ratio is found for each of these categories. By weighting and averaging the medians, a county average factor is determined. The equalization factor with the percent to be added and the reciprocal of the factor—the ''multiplier''—are certified to the county clerk, who then increases or decreases all locally assessed valuations accordingly.[13]

In 1946, the first year of operation of the new equalization law, the equalized value of assessed property in Illinois was 20,761 million dollars as against 9,142 million dollars in 1945. The state-wide average tax rate in 1945 was 4.18 percent; in 1946 the average rate was 2.01 percent, although the 1946 property tax extended exceeded that of 1945 by more than 9 percent.[14]

The equalization factors determined by the Department of Revenue ranged from 13 to 62.89 percent in 1946 and from 13 to 100 percent in 1947 and 1948. Thus in the county with the lowest equalization factor (13 percent) the locally assessed valuation was increased 669 percent while no change was made in the counties with equalization factors of 100.[15] The latest available equalization factors (1951) show a range from 13 to 100 percent. More counties, however, were at or near 100 percent than was true in earlier years. In 1951 47 of the 102 counties had equalization factors of 80 percent or more, of which 42 were at 100 percent;

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[8] Illinois Department of Revenue, *First and Second Annual Reports*, 1943-45, pp. 46-47.

[9] Illinois Revised Statutes, 1945, Chapter 120, par. 627.

[10] Illinois Revised Statutes, 1943, Chapter 120, par. 627.

[11] Illinois Revised Statutes, 1945, Chapter 120, par. 627.

[12] See Illinois Revised Statutes, 1949, Chapter 120, par. 643a.

[13] Illinois Department of Revenue, *Third, Fourth, Fifth and Sixth Annual Reports*, 1945-1949.

[14] Maynard, E. L., "Recent Improvements in Illinois Property Tax Assessment Procedure." *Tax Policy*, May-June, 1950, p. 9.

[15] Illinois Department of Revenue, *op. cit.*, p. 25.

in 1949 only five counties had equalization factors of 80 percent or more.[16]

Although the law requires assessments to be equalized at "full fair cash value," the Department of Revenue reported in 1952 that "Comparisons would indicate that our equalized full values would approximate 60 percent of the latest single year sales analysis * * *. Department assessment (state assessed property returned to local rolls) would not generally be out of line with the equalized values of locally assessed property." [17]

It has been suggested that the "full value" equalization plan has fallen below full value because of the wide variation of assessment levels *within* counties. The Department of Revenue has no independent power to adjust assessments within counties by class of property. It has been observed that "The Illinois experience with full value underscores the necessity for uniform county assessment rolls (uniform between classes) before full-value intercounty equalization can become a political reality." [18]

In 1949 the Illinois Legislature passed a statute which provided in part:

> "The office of county assessment supervisor is established in each county of less than 500,000 population which does not have a board of assessors as provided for by this act and the offices of county assessor and county supervisor of assessments in such counties are abolished. During December, 1949, in each such county and during September, 1952, and every fourth year thereafter in each such county not under township organization, the county board thereof shall submit to the department a list of not less than three (3) nor more than ten (10) names of persons whom it regards as qualified for the office of county assessment supervisor by virtue of experience or training in the field of real estate appraisal and property tax administration. The department shall consider and ascertain the qualifications of each candidate and shall certify to the county board within sixty (60) days of receipt of such list the names of those persons whom it considers competent to hold the office. On receipt of this certified list the county board shall appoint one person therefrom to hold the office of county assessment supervisor. If on the list submitted by the county board to the department there is found no person qualified for the position, the county board shall in like manner submit a second list to the department. If the department does not certify any name from the second list the county board may either submit a third list to the department or at its option may appoint any qualified person to such office but the appointment of any person other than a person certified by the department as competent shall require the affirmative vote of not less than two-thirds of the members of the county board and the vote in respect thereto shall be by ayes and nays and entered on the records of the board." [19]

The statute further provided that the county assessment supervisor should be the assessor for the county in which he is appointed and for the terms of office and compensation of supervisors.

In 1950 this act creating the office of county assessment supervisor was held invalid [20] in that in effect it placed in the executive branch of the government a proper function of the legislative branch in violation of the State Constitution. The appointment of the county assessment supervisor, while ostensibly made by the county board, was so hampered and limited by requirements and restrictions as to, in effect, make the appointment that of the Department of Revenue and not that of the county board. "It can hardly be doubted that requiring the county board to send in not less than three nor more than ten names of candidates to the Department of Revenue, making the latter the sole judge of their competency, and, in case none of the first list sent is found to be competent, to again send another like list of candidates, and, if none on this list are likewise found to be suitable to the Department of Revenue, the county board may then select a county assessment supervisor, provided he is elected by a two-thirds vote of the members of the full board, has such effect." [21]

It appears to be generally agreed that the Illinois equalization program has produced substantial results. It was reported in 1950:

> "Many of the most serious defects of intercounty differences in assessment policy have been cleared up. The discrimination in relative tax burdens imposed upon state and locally assessed properties, has been effectively ended and arbitrariness in the distribution of taxes for overlapping or 'county-fringe' governments has been greatly alleviated. Perhaps an even more important accomplishment has been the rationalization of legal tax-rate and debt limitations." [22]

There appears also to have been "some tendency to improve the quality of original assessments within the counties, as inequitable assessments are more easily recognized when raised to full value." [23]

The Pennsylvania equalization law of 1947 involves the variable-ratio method of equalization. [24] Pennsylvania is one of the few states which has adhered strictly to separation of state and local tax sources. Neither a state property tax based on local assessments nor state-assessed property locally taxed created a need for equalization. In 1945, however, the General Assembly established a school subsidy system involving county assessed valuation of taxable real estate as the measure of local capacity to pay. "Of all the elements entering into the computation of school subsidies under the system established in 1945, only the capacity measure—assessed valuation—remained susceptible to local manipulation. By manipulation of the capacity measure; that is, by intentionally lowering assessed valuations, many districts obtained unfair advantages over other districts in the distribution of school subsidies.''[25]

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[16] Illinois Department of Revenue, *1951 Equalization Factors* (June 16, 1952); Illinois Department of Revenue, *Seventh Annual Report*, 1949-50, p. 37.

[17] University of California, Bureau of Public Administration, *op. cit.*, p. 22.

[18] "Recent Statewide Programs to Improve Local Assessments," National Tax Association *Proceedings*, 1951, p. 166.

[19] Illinois Revised Statutes, Chapter 120, Sections 483 (1949).

[20] *Giebelhausen* v. *Daley*, 407 Ill. 25 (1950). Rehearing denied November 17, 1950.

[21] 407 Ill. 25 at p. 41.

[22] Myers and Stout, "Recent Trends in Property Tax Equalization," *National Tax Journal*, June, 1950, p. 180.

[23] Maynard, E. L., "Recent Improvements in Illinois Property Tax Assessment Procedure," *Tax Policy*, May-June, 1950, p. 9.

[24] Laws of Pennsylvania, 1947, Act 447.

To eliminate such local manipulation the General Assembly in 1947 created the State Tax Equalization Board which is charged with annual determination of the aggregate market value of taxable real estate in each of the more than 2,500 school districts of the State. The market values as determined by the board are certified each year to the Superintendent of Public Instruction who must use these values instead of the county assessed valuations in computing school subsidy payments. However, no adjustments in local tax rolls or tax rate and debt limits result from the determination of district assessment ratios by the board.

The State Tax Equalization Board is required to use the selling price of real estate as the yardstick of value. The act further provides that ''all other available, relevant matter in any way having a bearing on the market value of real property in the several school districts'' may be utilized by the board. ''For certain types of property, selling prices are not adequate because of infrequent title transfers. In such cases sales data are supplemented by such indices of value as (1) consideration paid in leasing agreements; (2) average net yield attributable to taxable real estate; (3) reconstruction costs less depreciation; (4) appraisals.''[26]

The board certification of June 30, 1950, showed a total market value of $22,925,531,078 for all assessed taxable real property. The total assessed valuation for county tax purposes of the same property was $9,128,917,561, which represented an average assessment ratio of 39.82 percent. Excluding Allegheny and Philadelphia Counties, the average assessment ratio was 30.72 percent.[27] The certification of June 30, 1952, showed a total market value of $24,926,549,516 as against a total county assessed valuation of $9,849,179,821. Among the 2,514 school districts the percent of assessed to market value ranged from 6.2 to 68.1 percent. The average assessment ratio for the state as a whole was found to be 39.5 percent.[28]

The State Tax Equalization Board concludes with respect to the Pennsylvania program:

> ''In addition to insuring equitable distribution of commonwealth financial assistance to school districts, the State Tax Equalization Board findings will contribute to the solutions of other governmental problems—both state and local.
>
> ''For example, local officials and taxing groups find it difficult, if not impossible, to compare tax rates and the tax burden borne by real estate within a district, or among districts because of the lack of uniformity of real estate assessments. * * *
>
> ''Since assessed valuations are not uniformly related to market values, millage rates based on assessed valuations become meaningless as well as deceptive. * * *
>
> ''For the first time in the history of Pennsylvania, a reliable yardstick for measuring local capacity to pay is made available through the use of State Tax Equalization Board market values of assessed taxable real property. This yardstick also provides:
>
> 1. A realistic comparison of tax burdens of groups and of subdivisions within the commonwealth
> 2. A base for the possible rearrangement of other state-local fiscal relations, if the General Assembly and the Governor deem such rearrangement desirable.''[29]

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[25] Pennsylvania State Tax Equalization Board, *Report*, 1951, p. 12.
[26] *Ibid.*, p. 22.
[27] *Ibid.*, p. 14.
[28] *Ibid.*, *Report*, 1952.
[29] *Ibid.*, *Report*, 1951, p. 30.

DIVISION II

PUBLIC UTILITY VALUATION

CHAPTER IV

PUBLIC UTILITY VALUATION CONCEPTS

In the valuation of public utility property as in the valuation of any other type of property, residential, commercial, farm or industrial, there are two *conceptual* problems which must be solved before any of the *technical* problems can even be sensibly posed. These questions are (1) what is meant by "value" for property tax purposes? and (2) what is the unit of property that is to be valued? These questions are not entirely separable, to be sure, for the concept of value will, in part, determine the concept of the unit of property; and the concept of the unit of property will at least condition the concept of value that is theoretically sound and administratively practicable for tax purposes. In addition, these conceptual problems are connected in the sense that each must be analyzed within the framework of existing statutory definitions and judicial interpretations. This reference does not, of course, commit the analyst to the assumption that the statutory definitions are irrefutable and immutable. Such an assumption would be dangerous indeed, for it may be that these legally acceptable definitions have certain points of incompatibility with economic facts, administrative practicability, or the commonly accepted standards of equity, and perhaps even with other statutory provisions and other expressions of legislative intent. Nevertheless, it is necessary to make use of the statutory provisions as a starting point in the development of these two essential concepts.

Too often these conceptual issues are treated lightly or passed off entirely as too theoretical and academic for the practical valuation expert. In the present investigation this idea was stated again and again, in various ways and by various officials responsible for the administration of the property tax in California. It was apparently the implication of such remarks that there is something intuitive about valuation and that it is not necessary to know what the term "value" means to be able to "go out and value the property." It is, however, a little difficult to understand how a team of hunters can track down an elusive quarry when one of the hunters is searching diligently for a live steer, when another is employing all of the most modern techniques for locating a bargain roast of beef, and when still another is just looking for anything that will turn up that he can disguise with a dollar sign and claim as a trophy. It is one of the most important points of this report that a failure to come to grips with these two initial questions is tantamount to an admission that the problems are insoluble and the property tax unworkable. Indeed, it is stated later in the report that many of the present equalization difficulties which surround the California property tax can be explained largely in terms of the fact that the various assessing agencies in the State are pursuing quite different concepts of value and are making quite different assumptions about the unit of property which is to be valued.

It should not be thought that these problems are capable of easy solution. Neither should it be optimistically imagined that it is possible to be absolutely definite and final in stating the concepts. Even arbitrary definition cannot succeed in this. It is in the very nature of the problems that the answers must be phrased in terms of the hypothetical rather than the factual, the general rather than the specific, the tentative rather than the final.

The ensuing discussion is aimed at clarifying these concepts as they apply to the valuation of public utility property. But the differences between public utility property and other types of property *in this respect* are perhaps not as great as they have often been assumed to be. As a result, much of the discussion can be equally applied to public utility valuation and to the valuation of so-called "common property." Furthermore, many of the fundamental principles relating to the unit of valuation are often taken for granted in the case of nonutility property, and these principles will prove useful in developing parallel principles in the case of utility property.

THE CONCEPT OF VALUE

The California Constitution and the California Revenue and Taxation Code contain several references to the term "value," and the various sections in which such references appear attach a collection of more or less descriptive adjectives. Unfortunately, however, as is usual in such cases, these constitutional and statutory references provide but little of the real substance of the value concept. Article XIII, Section 1 of the California Constitution, for example, states merely that: "All property in the State except as otherwise in this Constitution provided, not exempt under the laws of the United States, shall be taxed in proportion to its value, to be ascertained as provided by law, or as hereinafter provided." This provision obviously says nothing about the *concept* of value as such, but points to other sections of the Constitution and to the laws of the State. Other sections of the Constitution, however, do not clarify the matter, aside from introducing two other labels. Article XIII, Section 9, of the Constitution, in describing the duties of the State Board of Equalization relative to the property tax, states that the board shall "equalize the assessment of the property contained in said assessment roll, and make the assessment conform to the true value in money of the property contained in said roll * * *." Section 14 of Article XIII of the Constitution introduces still another label in setting down the provisions for the assessment and taxation of the property of public utility enterprises. By this section, the properties of the various listed categories of public utilities "shall be assessed annually by the State Board of Equalization, at the actual value of such property." This new term is obviously intended to be the equivalent of any of the terms applied to nonutility property assessment, in view of the additional provision in Section 14 that “all property so assessed by said board shall be subject to taxation to the same extent and in the same manner as other property.”

Division I of the Revenue and Taxation Code deals with property taxation, and Section 110 of the code sets out the basic statutory definition of the term “value.” Section 110 states that: “ ‘Value,’ ‘full cash value,’ or ‘cash value’ means the amount at which property would be taken in payment of a just debt from a solvent debtor.” Section 602 describes the contents of the local assessment roll and applies the term “cash value” to land, improvements, possessory interests, and personal property other than intangibles. The same section applies the term “actual value” to solvent credits (recall that this term is also applied to public utility property in the quoted section of the Constitution). In Section 751 of the Revenue and Taxation Code the Board of Equalization is given a statutory mandate to “assess all State assessed property at its actual value as of noon on the first Monday in March.” In Sections 755 and 757 the term “market value” is introduced. The first of these sections requires the board to “prepare tabulations showing its determination of the market value of all state-assessed property.” This term is used in Section 1831 (currently inoperative until 1953 as determined by the Statutes of 1951, p. 3549) where the mechanics of equalization are spelled out in the following terms:

> “To enable the board to perform its duties under this article and Sections 9 and 14 of Article XIII of the State Constitution, the board shall make a survey annually in each county to determine the relationship between the total value of land, improvements and tangible personal property entered upon the roll by the assessor, and the total market value thereof. As a basis for this determination, the board shall consider sales and other appraisal data compiled by appraisers competent to determine accurately the market value of the property * * *.”

It thus appears that the Constitution and the Revenue and Taxation Code employ six terms which are at least superficially different (excluding the unadorned “value” which appears in Article XIII, Section 1 of the Constitution) in the various sections dealing with assessment and equalization. To repeat, these six terms are (1) true value in money; (2) actual value; (3) cash value; (4) full cash value; (5) the “just-debt-solvent-debtor” definition; and (6) market value. It is clear that these are only superficially different and that they must be looked upon as equivalents, for the principle of equalization as stated in the Constitution and the code requires that all types of property be taxed “to the same extent and in the same manner.”

All of these labels considered, it appears that the base of the property tax in California is to be measured in terms of what the economist would call “market value.” Reduced to its simplest terms, market value in this sense is merely the product, expressed as of a specified moment of time, of a number of units of a given type of property (however these are measured) and the actual market price (measured in money terms) at which these units are sold, if the sale takes place in the “open market.”[1]

The market value concept seems to correspond closely with the definition of value in Section 110 of the Revenue and Taxation Code as “the amount at which property would be taken in payment of a just debt from a solvent debtor,” although the correspondence is not immediately obvious. In the first place, the market value concept is stated in terms of a transaction for the goods themselves, while the code definition is stated in terms of a debt transaction which, in some way, *involves* the goods. It is possible to think of every transaction as involving a debtor-creditor relationship, even though the time span of the debt may be extremely short for many types of transactions. The moment an agreement is reached between buyer and seller with respect to the monetary consideration which will be involved in the transaction, a debt is created. The moment the full payment is made, the debt is extinguished. If the transaction happens to involve the transfer of goods (rather than negotiable instruments of some kind) the debt is normally, although not necessarily, a very short-lived one, with the buyer of the goods standing in the position of a temporary debtor and the seller of the goods standing in the position of a temporary creditor.[2] Of course this type of debt will rarely be represented by a piece of paper testifying to the character and the duration of the debt, but a debt clearly exists nonetheless.

But this interpretation seems to involve the opposite sort of terminology to that which appears in the definition extracted from the Revenue and Taxation Code. The latter implies that it is the *debtor* who accepts the money and “pays” the goods (which goods are being valued for tax purposes), while the *creditor* is he who pays the money and accepts the goods. The definition is badly stated to this extent, for, clearly, if nothing more is assumed, the definition envisages a nonlegal transaction. No creditor can force a debtor to pay any debt in any other way than by a transference of legal tender, money, at least unless other contractual conditions are present. To reconcile these terminological difficulties it is necessary merely to think of the debtor as a person who is in an illiquid position (although not an insolvent position). To make payment of the debt, he must then liquidate some of his property, perhaps by selling it to the creditor, and thereby equip himself to make the payment in money. In effect, there are *two* debt transactions in this case. The first (and original) debt is, perhaps, a long-term debt with a stated monetary consideration, contracted to enable the borrower temporarily to live beyond his means. The repayment of this debt, however, requires a further debt transaction, in which the original debtor sells some of his nonmoney property. The amount of property which he is obliged to sell is determined by the market price he can get for each unit of the property and by the size of the original debt which he must pay. The definition in the code is stated in terms of the first, or *original*, debt. But it *implies* the second debt, for it is only with the second debt transaction that the goods themselves are traded and that a market price appears. In this sense, then, the concept of market value and the concept of value that appears in the code definition are clearly in agreement, although we must judge the code definition to be a rather curious and unnecessary circumlocution.

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[1] See Horton, Byrne J., Ripley, Julien, and Schnapper, M. B., *Dictionary of Modern Economics*, Public Affairs Press, Washington, D. C., 1948, p. 349, where market value is defined as "The sum of money which can be obtained for goods, securities or services by their sale in the open market. In the absence of current quotations, it is determined by the price involved in the last business transaction or by the estimate of appraisers." The word "determined" in the above definition is clearly used in the measurement sense rather than in the causal sense.

[2] This concept of the relationship between transactions and the creation of debts is widely accepted in economic analysis. It is well described in Hart, Albert G., *Money, Debt and Economic Activity*, Prentice-Hall, New York, 1948, p. 15. The legal relationship is best stated in terms of the legal tender power which attaches to forms of legal money in the United States, which states that a particular unit of currency is "legal tender for all debts public and private." It is true that there are really two sides to the debt, for, while A owes money to B, B may be said to owe goods to A. The term "debtor," however, is normally reserved for A, the person who owes money, and the term "creditor" is reserved for B, the person who is owed money and who "owes" goods.

But the code definition goes on to insist that the debt must be a ''just'' debt and the debtor must be a ''solvent'' debtor. Both of these provisions are accounted for in the market value concept by the assumption that the goods are sold in the ''open market.'' The term ''open market'' is a singularly vague one and refuses to hold still long enough for careful examination. But at least it can be said that it carries the idea that there are a large number of possible buyers and a large number of possible sellers of the same type of good now being offered,[3] and that the seller is interested only in getting the best price he can for his offering. It also carries the idea that there must be only an *economic* relationship between the buyers and the sellers. The market value concept is not, for example, concerned with the possibility that the buyer is a close relative of the seller. A family transaction of this kind would no doubt distort the selling price either upward or downward and would tend to produce what might be called a ''kith-and-kin'' value rather than a market value. It is generally conceded, too, that the market value concept excludes the possibility that the seller is financially insolvent. Once again, insolvency can introduce marked distortions which come from the ''forced'' nature of the sale. The market value concept goes a bit further than this and excludes other types of forced sales, as when a person is forced to sell his property to the State in a condemnation proceeding or to pay his taxes, or when he is required immediately to pay a large fine or go to jail. In any situation the seller must be given a sufficient amount of time to permit him to explore the market and the buyer must be given a sufficient amount of time to permit him to explore the income and other potentialities of the property.[4] These elements are not explicitly included in the code definition of value for property tax purposes, for only the forced aspects of financial insolvency are mentioned. These additional types of economic compulsion are, however, generally recognized in the appraisal profession as tending to produce artificialities in market value, and perhaps they do not require statutory recognition.

As it is sometimes stated, the open market concept that is contained in the market value concept seems to involve the assumption of a large number of buyers and a large number of sellers. In this sense, the stock market is usually said to illustrate the essence of the open market concept, although it is not difficult to describe the retail market for many foodstuffs, the commodity exchanges, and even the housing market in the same terms. But for many types of property the assumption is by no means realistic. Nor is it a suitable theoretical base for the construction of such a practical thing as a property tax assessment roll. For many types of property such a market simply does not exist. There are probably few individuals who consider themselves in the market for a state-wide telephone company, a transcontinental railway system, a large oil company, or even for a telephone pole, a railroad roundhouse or an oil drilling device. Any sale of such property which actually takes place would probably not show a long history of competitive bidding and competitive offering after the fashion of the stock market operation. It would probably be much more akin to the very personal sort of higgling and bargaining associated with the eastern bazaar, although the financial sophistication of the participants would no doubt be more remarkable. Furthermore, it is quite fruitless to attempt to hypothesize about what the price *would* have been if a highly competitive system *had* been in existence. While such adventures may serve some very useful theoretical purpose, they are little more than mental calisthenics where the practical operations of the property tax are concerned. For this type of property it must simply be admitted that the open market is not necessarily a wide open market, and that monopoly sales and bilateral transactions are still compatible with the concept of market value.

Up to this point market value (or *taxable* value in California) appears to be something which actually occurs. It is not hypothetical. Its determination does not involve *estimation* by a professional appraiser, but merely *observation* by anyone capable of deciding whether any given price is a market price in the sense in which this term is defined above. Nor is it necessary for an appraiser to consider the possibility that an expressed market price is an ''inflated'' price or a ''nonnormal'' price. Aside from the statistical difficulties of determining what a ''normal'' price is, whenever an appraiser decides that a particular buyer was foolish in paying so much for a parcel of property when the price is bound to go down in the future he is, in effect, assuming that he knows more about market price than the market does. This assumption is clearly an impossible one to support for it involves a fundamental misconception regarding the meaning of a market situation.

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[3] This idea should not be held with too great tenacity, however, for it must be specially interpreted in the case of public utility (and many other) sales. This special interpretation is discussed below.

[4] The amount of time required to permit such explorations will, of course, be quite different for different types of property transactions. One could hardly expect a potential buyer of the Pacific Gas and Electric Company to reach an agreement on the selling price of the enterprise with the sellers within 90 days of the opening of negotiations, although a month might be ample time if the same individual were buying a home.

Furthermore, there is nothing in either the California Constitution or the California Revenue and Taxation Code to justify this interpretation. As is shown later in more detail, this misconception seems to arise, in both public utility valuation and in the valuation of common property, from a confusion of certain "evidences" of value with the concept of market value itself. Whenever a value figure appears as the result of a sale, assuming the sale to conform to the market situation described above, the appraiser may put away his valuation equipment, however elaborate this may be, and quote the figure as the market value of that property.

It is necessary to state one further general consideration at this point. As stated in the definition, market value is something which exists at a *moment* of time. This moment of time is prescribed in the Revenue and Taxation Code as noon on the first Monday in March of each year.[5] Thus, the number of market sales about which the assessor may make purely *factual* statements, with no estimation involved, is greatly limited by the requirement that the only relevant transactions are those which are completed at precisely noon on the first Monday in March of the tax year in question. Strictly speaking, every other sale requires interpretation and analysis.

The period of time which elapses between an actual sale of a given piece of property and the legally defined tax date on which that property must be valued is of crucial importance. If this period of time is short, it may reasonably be assumed that little or no change in value has taken place, although this will, of course, depend upon the nature of the market in which such property is sold. It may even be that sales which take place within six or nine months prior to the tax date are acceptable as market value figures, unless it is clear that some marked changes have taken place. Certainly no quarrel can arise if the time period is as short as this, for it is recognized that the administrative difficulties associated with mass appraisals demand such simplification. Over longer periods of time, however, several things may happen to make the sales data largely irrelevant for present valuations, at least if they are taken at face value. In the interim, the property may depreciate physically as a result of use, weather, earthquake, or other acts of God and man. Or the attitudes of the market with respect to the particular parcel of property in question may change as a result of obsolescence, a new recognition of the services which the property can render or for a host of other reasons. Or the market attitudes, as expressed in money terms, with respect to *all* types of property may change. Any such changes would invalidate the use of sales data unless these were adjusted to take account of the changes.

This point might be stated in a slightly different way. If the particular unit of property being valued is sold within the time period determined by administrative necessity, the price obtained for a given parcel in the open market is not merely an *evidence* of value: it *is* value, i.e., market value in the economic sense, and taxable value in the statutory sense. When the sales of the property have taken place beyond this time period, the prices must then be considered to be mere evidences of value. It will almost always be necessary to supplement this type of sales data with other types of evidence, such as the current sales prices of comparable properties (which, in turn, require the use of engineering studies to establish comparability), studies of market changes, estimates of the earnings potential of the property, engineering and economic estimates of depreciation, engineering and economic estimates of obsolescence and so on. The usefulness of the historical sales data will depend entirely upon the importance of the changes in these other evidences, and this in turn tends to be rather highly correlated with the length of time between the last reported market sales figure and the date of the tax valuation. It may even be that in some cases the last available sales figures relate to such a distant point in time that they have to be cast aside entirely and separate estimates made which have no direct reference to sales experience. In no case, however, should these other evidences be confused with value itself. At best they represent merely an attempt to construct circumstantial evidence when the facts are absent. The character and usefulness of these estimating devices are discussed in some detail in the chapters which follow.

The property of public utility enterprises and the property of many other types of industrial enterprises present still another difficulty as far as the use of sales data is concerned. For public utility property it is not merely a question of the length of time between the last purchase and the tax date. It is also a question of the fact that such property may *never* have been purchased. This statement requires some amplification, for clearly the individual items of property which go to make up the public utility system will have been purchased at some time, however distant. But the construction records of public utility enterprises typically show periodic additions to and subtractions from an existing system; i.e., a piecemeal construction and retirement, rather than an outright purchase of the entire system. Sales of utility enterprises or large portions thereof are not unknown, of course, and when such appear they may be taken as relevant (with any necessary time period adjustments) for tax purposes. But such sales are rare. Indeed it is quite probable that in any given tax year no sales may have occurred for anything that could reasonably be called a public utility *system*. This is especially probable if we insist upon a rigorous application of the "open market" conditions of the sales. These conditions would, for example, rule out the unqualified acceptance of condemnation sales to public bodies conducted under the laws of eminent domain, for there is no reason why a "condemnation price" must correspond precisely to a market price as defined above.[6] Even sales between private parties must be analyzed with some care. The sale of a complex public utility enterprise is hardly as simple a transaction as the sale of a grand piano or a house and is, in addition, affected by the devious operations of public utilities commissions and other regulatory agencies. In public utility valuation one must recognize that the appraiser is not merely confronted with sales data that are unsatisfactory and require adjustment, but that, for the most part, the appraiser is confronted with a total absence of sales data.

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[5] Section 405 of the Revenue and Taxation Code, relating to common property, states that "annually, the assessor shall assess all the taxable property in his county, except state-assessed property, to the persons owning, claiming, possessing, or controlling it at 12 o'clock meridian of the first Monday in March. The assessor shall ascertain such property between the first Mondays in March and July." Section 751, relating to state-assessed property, states that "the board shall assess all state-assessed property at its actual value as of noon on the first Monday in March."

[6] See Bonbright, James C., *The Valuation of Property*, McGraw-Hill, New York, 1937, Chapter XVI, passim.

This point appears to be sufficiently important in terms of its implications about the concept of value to warrant an additional statement with a slightly different orientation. Let us assume that we are attempting to determine the ''market value'' of residential property ''A'' and public utility enterprise ''X'' as of the first Monday in March, 1952. If property A has been sold within the nine-month period preceding this tax date (this being the arbitrarily chosen time tolerance), and if the conditions of the sale closely approximated the conditions of the ''open market,'' we may consider the market value to be a fact. If, however, property A has not been sold since 1890, the market value as of the first Monday in March, 1952, must be hypothetical. But the *general concept* of market value for this property is by no means hypothetical, for we have the factual evidence of the 1890 sale on which to construct the concept. In addition, we probably have a large enough number of sales of similar residential properties within the nine-month tolerance period to permit a fair comparison. We know from an examination of the historical data relating to this parcel of property and of the current data relating to similar properties how the buyers and sellers in the market react to specific stimuli and specific market conditions. The specific answer to the question ''what would property A bring in the open market if it were sold on the first Monday in March, 1952?'' must, to be sure, be hypothetical. But at least we know what we mean by market value, for we have been able to observe market value at other points in time and at other points in space.

When we ask the same question of public utility property X, however, the answers must be even more imaginary.[7] We must not only construct a hypothetical market value, we must construct a hypothetical *concept* of market value as well. The amount of statistically-acceptable evidence is not great enough to permit us to point to actual facts and say that they illustrate a concept. Instead, we must rely upon our knowledge of human psychology in general and economic motivations in particular to enable us to say that this is probably how individuals would react if they were confronted by the sort of situation we posit. The difference between the value concepts which attach to property A on the one hand and to property X on the other hand consists simply of the fact that for A the concept is hypothetical only insofar as it relates to the first Monday in March, 1952; while for X the concept is hypothetical for *any* point in time.

This last-mentioned difficulty brings the concept of value into close contact with the concept of the unit of property that is to be valued. But this difficulty is a *real* difficulty *only if it is assumed that the correct unit of valuation is the entire public utility system rather than the various component parts of that system.* The difficulty would certainly not arise if the unit of property subject to valuation were a telephone instrument, a diesel locomotive, a mile of copper wire, or a sack of cement in Keswick Dam. These things are sold more or less regularly and it is possible to discover market value figures directly—or at least to locate comparable sales without difficulty. It is only when the valuation unit is the entire utility system that we experience difficulty in locating market sales. The problems which arise from the choice of the unit of property for purposes of tax valuation are treated in detail immediately below, but it must be emphasized at this point that there can be no real separation of these problems from those relating to the meaning of value itself.

THE UNIT OF PROPERTY WHICH IS TO BE VALUED

The second problem which must be solved before the specific tasks of valuation may be reckoned with relates to the choice of the unit of property for which a taxable value is to be sought. The problem is most often discussed as though it related solely to public utility property and, within that category, to railroad enterprises in particular. In this context, the analysis has supported what has come to be called the ''unit rule of valuation,'' a rule which is now commonly applied in the valuation of public utility property. In spite of this usual orientation, however, the problem arises in the valuation of any type of property—the simple residence as well as the complex utility, the small retail establishment as well as the extensive farm property. It must arise for all properties just as surely as it is necessary for the appraiser to ask himself what it is that he is going out to value. By the same token, it can be maintained that there is a ''unit rule'' which can be applied to the valuation of any property, public utility property included. The specific character of this unit rule in any act of valuation will be determined by the type of value concept under which the valuation is conducted and by the demands of the logic which surrounds it. But when the appraiser decides upon the basic unit for valuation he agrees, in effect, not to add up the ''values'' of any smaller units to arrive at the value of the whole. In general terms this is the unit rule of valuation.

As was pointed out above, the California Constitution and the California Revenue and Taxation Code have little enough to say about the concept of value. They have still less to say about the concept of the basic unit of property which is to be used in the valuation process. Perhaps it would be more accurate to say that the few things which the Constitution and the code have to say about the unit of valuation seem to conflict with the few things which these documents have to say about the concept of value. This point is worth developing at some length.

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[7] It must be understood that the problem under discussion is not restricted to public utility property. It is a problem which is associated with the valuation of any type of property which is infrequently traded. Large industrial enterprises stand out as obvious examples. The present argument relates to public utilities only because the somewhat artificial distinction between public utility property and common property has been made in the California Constitution and in the Revenue and Taxation Code.

There appear to be two sections in the Constitution and three sections in the Revenue and Taxation Code which deal with the basic unit of taxation and, by implication, with the basic unit of valuation. The first of these is Article XIII, Section 2, of the California Constitution: ''Land, and the improvements thereon, shall be separately assessed. Cultivated and uncultivated land, of the same quality, and similarly situated, shall be assessed at the same value.'' Article XIII, Section 14 of the Constitution, dealing with public utility assessment, requires that the State Board of Equalization assess ''all property, other than franchises, owned or used by'' the various listed types of utility companies. Section 602 of the Revenue and Taxation Code lists the contents of the local tax roll and requires that the assessor show, among other things, the ''cash value of real estate, except improvements,'' ''the cash value of improvements on the real estate,'' ''the cash value of personal property, other than intangibles,'' ''the revenue district in which each piece of property assessed is situated,'' and ''the total taxable value of all property assessed, exclusive of intangibles.'' Section 606 of the Revenue and Taxation Code provides that ''when any tract of land is situated in two or more revenue districts, the part in each district shall be separately assessed.'' Section 607 is the statutory equivalent of Article XIII, Section 2 of the Constitution and states that ''land and improvements thereon shall be separately assessed.''

These sections of the code and the State Constitution require the assessor to make two types of distinctions upon the assessment rolls. The first might be called a functional distinction and is based upon the type of property involved in the assessment. In this, the assessor is required to determine, on the one hand, a ''land value'' which is separate from the value of any improvements which may be located thereon and, on the other hand, an ''improvement value'' which is separate from the value of the land which supports the improvements. In addition, of course, he must separately determine a ''personal property value.'' The second distinction which the assessor must make is a geographical distinction and is based upon the location of the property relative to the boundaries of the revenue districts. Section 606 of the Revenue and Taxation Code clearly indicates that the boundaries of tax jurisdiction take precedence over the boundaries of ownership and any boundaries determined by the functions which the property is designed to fulfill.

It cannot be denied that these sections of the Revenue and Taxation Code are *necessary*, unless some basic changes are to be made in the property tax structure and in the laws governing the jurisdiction of the various taxing agencies in the State. Section 606 of the code is, in a sense, the intrastate equivalent of the federal constitutional provision which prevents the State of California from taxing property which is located in the State of Nevada. If the counties, cities, school districts and special districts in California are to be permitted to levy their own property taxes it is clearly necessary for the boundaries of tax jurisdiction to correspond with the boundaries of administrative jurisdiction, even though, in some cases, these boundaries may have to be drawn through a parcel of property which is not logically divisible. By the same token, the fact that some of these districts are permitted to levy their property taxes upon land only, while other districts are permitted to levy their property taxes upon land and improvements, makes necessary the functional distinction on the assessment rolls; that is, it makes it necessary for the assessor to distinguish between land value and improvement value and personal property value even though, in some cases, this distinction violates the unit rule of valuation. These sections in the Revenue and Taxation Code are the offspring of other provisions in the code and Constitution having to do with the jurisdictions of taxing agencies and are not even distantly related to the niceties of an intelligent valuation technique.

In this sense it appears that the assessor[8] cannot avoid being illogical in reporting assessed values on the assessment rolls. For he is committed by law to a distinction which cannot in all cases be supported by logic.

It is necessary to emphasize at this point that to state that the laws impose inconsistent requirements upon the assessor is not necessarily to argue in favor of a change in the laws. As has already been pointed out, these laws exist to implement other provisions which relate to the entire jurisdictional structure of the State. These must be debated on their own merits, although the debate clearly cannot be conducted in this report. If, for purposes of the present argument, we accept the existing framework of the laws, it is necessary to insist only that the basic unit of property for purposes of *valuation* need not correspond precisely with the basic unit of property for purposes of *taxation*. It is required that the assessor determine a market value. To do this he must adopt a rational definition of the unit of property for valuation purposes. If the law then requires him to break up this value into its component parts, the separation must be justified as a separation of convenience. But however convenient the separation, the reported figures *for each category of property* cannot, in the great majority of cases, be said to be true market value figures. A recognition of this principle is essential to an understanding of the problems of public utility valuation, although it is a sufficiently general principle to be applied to all types of property.

So far it has been stated only that the laws are inconsistent because they insist upon a set of artificial distinctions in the reporting of market value figures by the various assessment agencies in the State. The specific character of the artificiality has not yet been explored. Yet it is obviously necessary to show why, in the great majority of cases, it is illogical to talk about a land value which is separate from an improvement value and (particularly in the case of the public utilities) from a personal property value. This question, in turn, raises broader questions which relate to the unit of property to be used for valuation purposes.

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[8] Unless otherwise mentioned, the term "assessor" is always, in this report, taken to refer to both the local assessor and the State Board of Equalization as the state assessment agency. This dual reference *is* intended in the present context.

If, as was shown earlier in this chapter, the law requires the determination of *market* value figures, it would seem logical to think of the basic unit of property as a *market* unit. In the discussion of the meaning of market value three general situations were described. The first of these was one in which the market prices of the property being valued could be taken without adjustment as the values for property tax purposes. The second was one in which market prices were present but, for one reason or another, unsatisfactory. In this second situation, certain evidences of value had to be examined in an attempt to duplicate the conditions of the first situation. Although these figures would not *be* market figures, their usefulness for property tax purposes would depend solely upon the closeness with which they *approximated* market figures. In the third situation, illustrated mostly for public utility enterprises, market value figures were entirely absent. In this situation it was necessary to construct a hypothetical market on the basis of a knowledge of economic behavior and, with the further use of certain "evidences," to estimate the price which would be paid for the property if such a market did exist. Here too the figures would not *be* market figures, and their usefulness for property tax purposes would depend upon the logical soundness of the construction and upon the realism of the basic assumptions. In any event, the central conclusion is that if an acceptable market situation does not appear as a fact, it is the legally-defined duty of the assessor to construct a reasonably accurate facsimile.

But a market "situation" consists of more than a market and more than a price which is paid in the market. It also consists of a piece of property which is traded in the market. Whenever a sale takes place within the period of time arbitrarily selected as permissible for valuation purposes, and assuming the conditions of the sale to conform to the standards of the "open market," the two facts which stand out clearly are (1) the price paid and (2) the unit of property traded. It is the *market* which has determined the unit of property in this case, and any breakdown of the value on the assessment rolls must involve the sort of artificiality described above.

If we imagine an actual purchase of a house and lot at a single price, the above statement indicates that it would be meaningless to say that the buyer paid a certain percentage of the total price for the house and the remainder for the lot, just as it would be meaningless to say that the buyer paid a certain amount for the plumbing, a certain amount for the wiring, a certain amount for the foundations and a certain amount for the front door. The point is that the buyer bought the house and lot *as a unit* and there is no logic to any further distinctions. This is not to say that the land under the house has no "value," but merely that it has no market value which can be separated from that of the house which it supports.[9] In valuation work it is sometimes said that, although the market value of the land on this particular parcel of property is not a fact expressed in the contract, it can nevertheless be estimated from sales data relating to adjoining parcels which, perhaps, contain no houses. This seems to be a fairly common interpretation, but it must be held to be incorrect. For the fact that a house has been constructed on a given parcel of land means that the economic character of the *land* has been changed. Once again such comparisons may be convenient, but they are not accurate.

If the assessor attempts to construct a market situation in those cases where no actual or acceptable market sales have been made, he must first attempt to determine the "sales unit." In other words, he must try to answer the question "what is the unit of property which would be sold in the market?" before he can begin to answer the question "what would the property sell for in the market?" At this point it is necessary for him to call upon his knowledge of "typcial" market situations for the type of property he is valuing. It may be, for example, that he knows of some residential property for which the last sale did record a separate purchase of the land and the house. Unless this is the *typical* type of residential sales contract in his area, however, he must neglect this example. Obviously the assessor will not neglect the character of the transaction when he values *that particular parcel* of property. But if the case is clearly atypical, he must not construct his general case on the conditions of this sale. For residential properties his conclusion would, no doubt, have to be that the basic unit of valuation is the house and lot taken as an entity, simply because this happens to be the typical unit of sale. In the case of certain types of commercial properties, he may have to conclude that the basic unit of valuation includes the store, the land and even some of the personal property. To be sure, he will have to show on the assessment roll separate figures for each type, but he will not be able to describe the separate figures as *market* value figures if the *market* typically does not distinguish between the types. In all cases, his benchmark is determined for him in the market place and the accuracy of his ultimate answers will depend in the first instance upon his knowledge of market characteristics in his area with respect to the various types of property. Only where the market place has no data to offer as far as the unit of sale is concerned is it necessary to deal with hypotheses.

This last possibility is, of course, the general rule in the case of public utility valuations. It is generally true that the market has no sales data whatever to offer, either for direct observation or for the construction of a typical case, when the subject of valuation is the entire public utility system. How, then, is it possible to determine the basic unit of valuation in the public utility case?

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[9] This is, no doubt, an overstatement of the case. It is possible that the buyer of the property wants to use the land for some agricultural purpose, in which case the house is likely to be a disadvantage, only partially offset by the scrap value of the house. In this case, the house itself might logically be valued at its scrap value minus the cost of removal. The land value would then be the difference between the total consideration and the value of the house so computed. This is clearly not the usual case, however, and may be neglected in the present analysis.

At first sight the question seems to answer itself. As has already been stated, the individual items of property which go to make up the utility system will have been sold at some time or other. Market data clearly *do* exist for utility property. If, then, we do not possess market data for the utility system as a whole, and if we do possess market data for individual telephone poles, railway ties, and so on, why not make these individual items the basic units of valuation? It would still be possible to adjust the sales data, where necessary, for any changes which have taken place between the time of sale to the utility and the time of the valuation. Is this not exactly what the general principle suggests? When the Pacific Gas and Electric Company buys a mile of copper wire, the price which it pays *is* the market value of that mile of copper wire (assuming the sale to be an ''open market'' sale). The obvious conclusion seems to be that if the value of the physical property of the entire company is to be determined, one has simply to determine the current market value of a mile of copper wire, allow for any depreciation or other change, employ the same techniques for every other item of property owned by this taxpayer, and add up all of the market value figures. This reasoning is deceptively simple, however. It is also incorrect. It cannot be denied that a market value figure appears when the Pacific Gas and Electric Company buys this illustrative mile of copper wire. If the assessor were valuing this property at the moment of the sale to the company he would have no choice but to put this figure down as ''full and true value.'' But the moment the copper wire is installed in the operating system of the company, it becomes a different type of property. If the assessor were valuing it after its installation, he would not be looking at merely a mile of copper wire but at a mile of copper wire which is connected to another mile of copper wire which is part of the entire electric distribution system at one end and the entire electric generating system at the other end. The wire rolled up on a spool is simply not the same property as the wire installed.[10] By the same token, there is absolutely no reason why the market value of the wire on the spool must be equal to the market value of the wire in the system. As a matter of fact, it is the point of the present discussion that *there is no market value of the wire once it has been installed in the system,* unless market value is interpreted as scrap value.

In this sense, there is only a difference of degree between a house and a public utility enterprise. The house, too, is composed of a number of commodities which have, at one time or another, been separately purchased. At the time of the purchase of each item the price of the item is equivalent to its market value. But when all of the materials have been combined, it is meaningless to talk about the value of the wood and the value of the electrical fixtures and the value of all the other individual items and then say that the value of the whole is equal to the sum of the values of these individual parts. It can hardly be denied that a sack of cement is completely transformed when it is mixed with water, sand and gravel to form part of the foundations and when the foundations are poured on a plot of ground to support the rest of the structure. The cement becomes part of an organic whole and no longer has a value that is independent of the value of the rest of the property. The sack of cement in the foundations of the house is in no way different from the sack of cement in the hydro-electric dam. Each loses its physical identity in the act of installation and a mere desire to value the property does not restore this identity.

The cardinal rule for any California assessor to follow in the valuation of either utility or nonutility property is that he must value the property as it exists on the first Monday in March of the current tax year and not as it existed prior to or at the moment of its installation. It seems to be generally recognized that it is necessary to take account of any depreciation of the property which takes place between the date of installation and the date of tax valuation. It seems strange that the most important feature of the property, viz., its installation and its resultant functional relationship with other items of property, is so often overlooked or misunderstood in the valuation process. There are probably few who would raise serious objections to valuing a house as an entity (although there may be some who would object to valuing a house and lot as an entity). Yet there does seem to be a certain reluctance to apply the same principles to a large industrial enterprise or a public utility. Perhaps part of the explanation for this disparity is to be found in the fact that the *buyer* of the house rarely attempts to value the parts separately in constructing his offering price. To be sure, he may be influenced by the copper pipes and the parquet floors. But it never occurs to him to place specific values on each feature and then add them all up.[11] Instead, he forms his impressions, perhaps with professional assistance, and hopefully suggests a low figure for the whole thing. The seller of the house may, indeed, add to the original costs the costs which he incurred in improving the property, but he will probably quote a higher figure than this total as his original asking price and will probably be disappointed if he can receive no more than this in the consummation. The general absence of such sales in the case of industrial and utility property seems to allow the idea to persist that it is possible to add up all of the costs of constructing a steam generating plant to determine the ''value'' of the plant and to add this to all of the "values" of all of the other parts of the utility system to determine the "value" of the entire system.

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[10] This idea is subject to further discussion, for it is sometimes suggested that, although the character of the property itself is indeed changed as the result of installation, it can be accounted for economically by adding to the costs of the property the costs of the labor required to install it and the costs of interest during construction, and so on. This is more clearly the argument that value can be interpreted as the reconstruction cost new less depreciation of the item of property, and that the value of the enterprise can be determined merely by adding up all of the reconstruction cost new less depreciation figures for all items of property in the system. This is a somewhat different case from that under discussion. The case is more fully discussed in Chapter VII which follows.

[11] It is shown later that there may be some point to the assessor computing "reconstruction-cost-new-less-depreciation" figures for various types of property where other "evidences" of value are lacking. But to confuse these figures with market value is to fall into a common yet dangerous trap. We are not, for the moment, concerned with the many makeshift devices which can, and in some cases must, be used by the assessor, but with formulating a set of general principles which must be the starting point of any appraisal.

In the valuation of residential property it is not necessary to make a great issue out of the functional relationship between the individual parts of the property unit. The buyer of the house does this quite naturally and quite without calculation. To do otherwise would be to think of the possibility of buying the roof or the plumbing system or the chimney without buying the rest of the house and the lot that it stands on. By the same token, the seller rarely contemplates the possibility of selling the roof or the plumbing separately, for in modern living these items are generally considered to be basic necessities. If the buyers and sellers who comprise the market hesitate to think in fractions, it seems somewhat incongruous for the assessor, who is trying to imitate the market decision, to utilize valuation techniques which have this effect.

In residential valuation the assessor always has the market behavior as a benchmark and consequently need not go far astray in his choice of a valuation unit. In public utility valuation, however, no such benchmark exists and it is necessary for the assessor to develop with logic what the buyers and sellers of a residence determine almost intuitively. Nevertheless, a contemplation of this residential market can offer abundant rewards to the assessor of public utility property or his critics. *Why* does the buyer of a house think in totals rather than fractions? The answer is clearly that the roof has almost no value without the walls which support it, the walls have almost no value without the foundations which support them, and the foundations have almost no value without the land which supports them. *Why* does the seller of a house similarly think in totals rather than fractions? The answer is clearly that a house without a roof has very little value, that a house with a roof but without walls cannot even be contemplated, and so on. These points are considered worthy of repetition if only because they permit this further observation: *The individual parts of this house and lot perform cooperative functions.* This is the feature which justifies a unit valuation of the house and lot as an entity. This is the lesson that must be learned before any sense can be made out of public utility valuation. For it is equally true that the many operating parts of a complex railroad system, telephone company or gas and electric enterprise perform cooperative functions. For the same reason they must be valued as an entity rather than as a collection of pieces. Economically speaking, a human arm or leg or heart have very little value if they are separated from the corpus. We recognize the necessity of "valuing" the human being as a unit and agree that the value of the whole is not equal to the sum of the values of the parts because the parts *per se* have no value. To be sure, the answers are not as clear as this in the area of public utility valuation. But the concept of a *functional unit* is nevertheless a real one.

So much is generally agreed in the professional literature on public utility valuation. But the general conclusion that it is necessary to value as a unit all property which is functionally related is not the choice of a *specific* unit of valuation. Beyond this point the agreement breaks down, or is at best tentative. Questions such as the following continue to impair the clarity of the unit rule: "Should nonoperative property be considered to be part of the unit?" "Should the property of an operating subsidiary be included with the property of the parent company for valuation purposes?" "Should the operating property of other companies be valued along with the operating property of the given company if the various companies have arrangements for the joint use of some property?" There is a large literature on these questions but perhaps the most striking impression conveyed by this literature is that it is singularly inconclusive. This is probably unavoidable, however. The answers will no doubt remain somewhat vague and the boundary lines will have to continue to be arbitrarily drawn. In some cases, at least, convenience will have to be the governing factor.

It may be possible to shed some additional light on these problems, however, if the analysis is carefully constructed upon the argument presented thus far. This argument has led to the important conclusion that the basic unit of property for valuation purposes is functionally determined. Whenever we find a number of pieces of property that are cooperatively arranged we must choose the larger rather than the smaller unit as the property to be valued. But a moment's reflection will show that there is no logical stopping point unless some other principle is introduced. It is usually admitted that the branch line of the railroad is functionally related to the main line. But it is also true that the loading ramps and sheds which may be owned by the shipper are functionally related to the railroad, for it would be very difficult indeed for the transportation services to be brought to fruition if these ramps and sheds were not present. There is an equally close relationship between the operating property of one railroad company and the operating property of another railroad company. It is, for example, common knowledge that the cars of one company operate on the tracks of another, and if there is any fact which does not require analysis to be understood it is that the cars and the tracks cooperate in the provisions of railroad services. Does this mean, then, that the unit of propery for valuation should be the entire railroad system of North America? This is precisely what it would mean if the principle had to be constructed *solely* on the grounds of functional relationship.

But why stop with railroads? There is certainly a very direct relationship between the coal mine and all of its equipment and a coal-burning locomotive, as a prolonged strike in the coal-mining industry indicates all too clearly. In addition, it cannot be denied that a steel mill and a railroad are in very close functional relationship, for a cessation of activity in either of these enterprises could be severely damaging to the other. The oft-cited competition between the railroad carriers and the trucking carriers is only a part of the story. Cooperation between these enterprises is also an important characteristic, for certainly the transportation services are not completed at the freight sheds. Indeed it is clear that to state the principle of functional relationship is to state in other terms the fact that we live in an integrated *economy*. In such an economy specialization of tasks has made it almost impossible to locate a complete independence of functions. If our valuation principle had to rely upon the idea of functional relationship alone, there would be no logical boundary line to the ''basic'' unit of property short of the entire country, and even there no logical boundary would exist.

Fortunately, however, the dilemma is not as great as this. The idea of functional relationship is introduced only to compensate for the deficiency of market data. But it is still necessary to attempt to reproduce a market situation. One obvious characteristic of the market situation is that of ownership. A sale represents a transfer of ownership and in normal circumstances the seller of a piece of property cannot market the property unless he owns it. It is the ownership unit which sets limits upon the unit of property that may logically be selected for valuation purposes. In spite of strong functional ties between various pieces of property, the valuation unit may not extend beyond the boundaries of the unit of ownership, if only because the ownership unit determines the maximum unit of marketability and marketability is an essential element in the concept of market value.

It now appears that the two key terms in the determination of the valuation unit are ''functional relationship'' and ''ownership.'' Functional relationship provides a minimum definition; ownership provides a maximum definition. In general terms, the unit rule would now have to be stated in something like the following terms; viz., ''*within the boundaries established by existing ownership*, the unit of property suitable for the determination of a market value must include all property items which are functionally related.'' Any unit smaller than this may still have a dollar sign attached to it if such is required by law, but the dollar sign will not be a symbol of market value.

Unfortunately, this restatement of the unit rule does not quite answer all of the questions which arise in this area. There are two difficulties which remain, and it is here that somewhat arbitrary answers appear to be necessary. The first of these difficulties is concerned with the location of the ownership boundaries in specific cases and the second is concerned with the location of the functional boundaries.

In an economy in which the corporate form of business organization is as important as it is in the United States, the boundaries of ownership are by no means clear. *Ultimate* ownership obviously resides in natural persons (except, perhaps, in the case of government-owned property). But a corporation is a source of *intermediate* ownership and is, of course, defined as an ''individual'' for many legal purposes. If the general property tax were levied solely upon natural individuals, and if the base of the tax were the market value of everything which such an individual owned—including the bonds and stocks of corporate enterprises—the determination of the boundaries of ownership would be greatly simplified. At the same time, of course, the problem of applying the unit rule of valuation would not arise—at least not in the same form as in the present case. An individual who owns a share of common stock in a public utility does not own specific items of property such as telephone poles and wires, but only a percentage of some total. The share of stock (or the block of shares) would be the ownership unit and would, as a result, be the valuation unit. As a general rule, it would be unnecessary to relate the value to the physical items of property, for it is the abstract shares of ownership which are marketed. Under such a property tax, market data would be readily available in the majority of cases, and many of the answers could be removed from the realm of hypothesis.[12]

But this is *not* the character of the general property tax in California at the present time. Our tax laws make explicit provision for the levying of the tax upon corporate enterprises as the intermediate owners of property. Furthermore, it is based, not upon the total net worth of the corporation, but only upon the physical property which it owns.[13] In terms of ownership boundaries, this is an artificial situation, and it is this feature which prevents the question from being answered with finality. It is this feature, the levying of the tax at the level of intermediate ownership, which makes it necessary to introduce arbitrary solutions which can be only partially satisfactory.

Chief among the problems which devolve from the confusion which surrounds ownership boundaries is that of the operating subsidiary corporation. This is not a problem of how to tax the ownership shares held by the parent company in the subsidiary, but a problem of how to value the operating physical property of the subsidiary. More specifically, it is a problem of how to determine the basic unit of valuation. The question is, ''should the physical properties of these two companies be considered as a unit for valuation purposes (with the unit value presumably being allocated between the companies later on), or should these physical properties be valued separately for each company?'' A close functional relationship between the physical properties of the two companies would indicate the choice of the broader unit, perhaps to consider the subsidiary as a ''branch line'' road of the parent company in the case of railroad companies. But the amended unit rule instructs that the unit of valuation should not be broader than the unit of ownership. Unfortunately, however, ownership boundaries cannot be located *in terms of the physical property* in any case except that which relates to a wholly owned subsidiary.

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[12] This is not to say that all difficulties would be removed with the introduction of such a tax, for a new set of statistical problems would arise, along with some troublesome problems of equity and administrative practicability. This type of property tax is not being suggested as a replacement for our present structure. It is presented merely to clarify the problems of the present structure.

[13] This is true except for the special provisions relating to solvent credits. Section 2153 of the Revenue and Taxation Code states that "a tax of one-tenth of 1 percent is hereby levied on the actual value of solvent credits and any interest therein. The tax on intangibles imposed in this section shall be assessed, equalized, levied, and collected like other county taxes, except as otherwise specifically provided, and is in lieu of all other property taxes on intangibles."

The parent company, through its ownership of stock in the subsidiary corporation, does not own specific items of physical property—in fact, its ownership need not even relate solely to *physical* property. Instead, it owns some percentage of the *total* property of the subsidiary. In a situation in which, for tax purposes, a decision based upon physical property when the ownership data are represented by the holding of some percentage of the total shares of stock must be made, there are no logical grounds for deciding upon the appropriate unit of valuation. If an attempt to approximate market conditions is made, one becomes obliged to think in terms of the sale of shares of stock and not of specific items of physical property. Presumably, the parent company could sell in the market place all of its stock holdings in the subsidiary corporation, but such a sale could not be related to the total physical property of the subsidiary or to any portion thereof. Yet the law which defines California property tax system clearly requires one to think of a sale of the physical property, for it is the market value of this property which must be the basis of the assessment rolls. It must, therefore, be concluded that, with the exception of the wholly owned subsidiary, the problem of whether or not the operating property of the subsidiary should be valued along with the operating property of the parent company is basically insoluble. It is insoluble because it requires the construction of a market situation which not only *does not* exist, but which *cannot* exist, in view of the fact that the corporate sales which involve a subsidiary relationship must always involve the sales of the abstract shares of ownership and not the physical property of either company.[14]

Most analyses of these subsidiary relationships have been concerned with showing either a close or a distant functional relationship between the parent and the subsidiary and with justifying either a ''unit'' valuation or a ''separate'' valuation on the basis of the degree of functional relationship. To the extent that the analyses deal with this functional relationship alone, they deal with only a part of the problem. To be sure, the degree of functional relationship is important. But the problem of ''how to value the operating property of the subsidiary'' is primarily a product of the ownership relationships. Because the ownership boundaries which show up in the market place cannot be related to the physical property which is the subject of the tax valuation, the problem of the operating subsidiary cannot be solved on logical grounds.

It is clear that this difficulty does not arise in the case of the wholly owned subsidiary. With 100 percent ownership the subsidiary and the parent are, in fact, one and the same enterprise and should be valued as a unit. But for any fractional ownership the insoluble problem arises. There is nothing sacred about the ''51-percent ownership'' or the ''controlling interest'' formula *per se,* for these relate only to the strings of control which tie the operations of the companies together and do not testify to any unit of marketability of the physical property.

While the problem of the proper unit for valuation cannot be solved on logical grounds when a subsidiary relationship is involved, it may, in some cases, be solved on grounds of convenience. It has already been pointed out that in public utility valuation it is rarely possible to use market data directly, in view of the fact that market data of an acceptable variety rarely exist. In the majority of cases it is necessary to examine certain ''evidences'' of value and hope that they closely approximate the conditions which would exist if a market situation were present. One of the commonly accepted types of evidence is the so-called ''stock and debt'' evidence. This type is more fully discussed in Chapter VI, but one comment must be made here to fill in a gap in the present discussion. If the subsidiary corporation is closely held by the parent corporation, it is probable that the stock issues of the former will rarely, if ever, be marketed. Any market data which do appear will hardly be sufficient to permit a separate valuation of the subsidiary. It must therefore be concluded that in those cases in which the *evidences* of value cannot readily be separated for the two companies, there is a strong presumption in favor of including the subsidiary company along with the parent company in the valuation unit. This conclusion does not lend itself to generalization, however. Each case must be analyzed separately and decided upon its own merits.

In addition to the problems which are associated with ownership boundaries, there are a number of problems which are associated with the boundaries of functional relationship. The most important representative of these problems is the distinction between the operating and the nonoperating property of a given company. It is generally concluded that the proper unit of valuation should include all of the operating property but exclude nonoperating property. On the basis of the degree of functional relationship involved, this conclusion is no doubt valid, although, in many actual cases it is difficult to determine just what constitutes operative and what nonoperative property. But once again the concept of the valuation unit may be conditioned by the type of *evidence* available. If the evidence relates to the entire *company,* and if it is impossible to distinguish clearly in the evidence between operative and nonoperative property, it may be necessary for the assessor to value the entire physical property of the company and not to introduce the distinctions which may be justified by logic. In any event, it would seem to involve smaller possible margins of error if the assessor erred in the direction of the larger unit than the smaller unit, for as the unit of valuation comes to approximate the entire company, it also comes to approximate the most likely unit of marketability. In the last analysis, however, the choice must be made on the basis of the evidence which relates to the individual case rather than on the basis of a generalization.

In the case of public utility property it is not possible to make use of the statutory distinction between real estate and personal property to determine the unit of functional relationship. Sections 105 and 106 of the

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[14] It is recognized, of course, that there may be occasions on which the subsidiary "sells" some of its physical property to the parent, with no transfer of stock involved. But such sales are not peculiar to a subsidiary relationship, since they are also possible between completely independent enterprises. Sales of this type could be taken as relevant to the valuation although great care would have to be exercised in the analysis to assure that the sales conformed to the standards of the "open market."

Revenue and Taxation Code indicate, for example, that telephone and telegraph lines are considered to be personal property, although it is clear that they are part of the functional unit which provides telephone services and cannot logically be separated from the remainder of the operating property. The courts have done little to establish a consistent guide in this respect. In the Southern California Telephone Company case an attempt was made to construct a "unit rule," but, in view of the provisions of Section 105 of the code ("all buildings, structures, fixtures, and fences erected on or affixed to the land, except telephone and telegraph lines" are included in the term "improvements"), the concept of the unit was not extended beyond the central office buildings.

> "The central office equipment of a telephone company installed in a building owned by the company and especially designed for its use constitutes an improvement. This includes such items as headsets, operators' stools, etc., which, although readily detachable, *are usable only with the attached items with which they constitute a single unit*. The equipment located in small leased offices is not to be regarded as improvements, notwithstanding the attachment of switchboard legs and equipment to floors or walls by screws or bolts. The exemption of telephone and telegraph lines from the definition of improvements in this section (Section 105 of the Revenue and Taxation Code) has reference *only to the lines outside the central office buildings*." [15]

The State Board of Equalization, as the assessor of public utility property, applies similar standards in the case of gas and electric companies. Distribution poles and conductors, transmission poles and conductors, and similar properties are considered to be personal property, while substation buildings and equipment are considered to be improvements.

Although it is usually possible to think of a separate market for the personal property of the home owner (household furniture, for example), it is hardly possible to think of a separate market for much of the operating personal property of a public utility enterprise. Thus, while it may be acceptable to value the personal property separately in the one case, it is clearly unacceptable to do so in the other. The operating personal property of the public utility must be included in the broader unit of operating property for valuation purposes, and the separate listing on the assessment rolls must be executed according to standards of convenience and legal necessity rather than standards of logic.

The two conceptual problems posed at the beginning of the present chapter relate to: (1) the concept of value which must be used for the valuation of property in the California property tax, and (2) the unit of property which must be selected as the smallest unit for valuation purposes. It has been shown that, although the California Constitution and the California Revenue and Taxation Code apply several different labels to the value concept, it is clearly a market value concept which is required. It follows that the unit of property which is to be valued must also be a market concept. If, as is commonly the case in public utility valuations, the assessor has little or no market experience to call upon in the construction of these two basic concepts, it is the unmistakable duty of the assessor to simulate the conditions of sale which *would* exist in a market. In this respect, it has been shown that the buyers and sellers of any type of property decide upon the unit of property which will be traded by considering the nature of the functional unit on the one hand, and, of course, the existing boundaries of ownership on the other. These are basic features of the marketplace which must be reproduced by the assessor in his attempts to determine the valuation unit.

Once these two basic conceptual problems have been solved by the assessor of public utility property, the market situation must be approached from another angle. If the assessor is faced with the absence of market data which are directly indicative of market value, he must attempt to discover the basic forces which motivate the buyers and sellers of any type of property and apply these findings to the public utility property which he is valuing. By this device he attempts to determine which of the *evidences* of value are relevant to the property in question and which can be made to conform to the unit rule of valuation. The processes of constructing, adjusting, and manipulating the evidences of value are, of course, the technical aspects of valuation. But however sophisticated the techniques may appear to be, they are useful only if they are solidly founded upon a consistent theoretical argument. In the chapters which follow, an attempt is made to construct this theoretical argument. In these, a discussion of specific techniques is minimized, in part because these matters are now covered by a very large body of literature, and in part because they are the subject of further discussion in later chapters of this report. It is the basic purpose of following chapters to provide a general theoretical framework within which the techniques actually used by the state assessment agency may be fully analyzed.

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[15] A report of the decision in the case of *Southern California Telephone Company* v. *State Board of Equalization*, 12 Cal. 2d 127 in *Revenue Laws of California, 1951*, compiled by Dixwell L. Pierce, Sacramento, p. 87. Italics have been added.

CHAPTER V

EARNINGS AS AN EVIDENCE OF UNIT VALUE

SOME LEADING QUESTIONS

The valuation of public utility property begins with a recognition of the almost total absence of factual market value data and with a realization that it is necessary to manufacture a substitute. For many types of property, valuation is a discovery; for public utility property it is largely an invention. The assessor of public utility property is almost always obliged to be content with a collection of economic facts which are clearly in the category of "second best" when compared with the market sales figures themselves. However dismaying this realization may be to the assessor and to those who would investigate his activities, it is essential to an understanding of the assessment process and to an appreciation of the peculiar difficulties that accompany any attempts at property tax equalization in this area.

The specific hypothesis that the assessor must attempt to construct is represented by the question "what *would* a buyer of this property be willing to pay for it *if* he were to purchase it on the first Monday in March, 1952?" From the point of view of the present owner of the property the question would be "what *would* the seller of this property be willing to accept for it *if* he were to sell it on the first Monday in March, 1952?"[1] Approached in this way, the problem requires, above all else, a clear understanding of the manner in which potential buyers and sellers might be expected to react to the body of economic facts available to them in the bargaining process. Thus, the task of the assessor consists of much more than a mere collection and interpretation of the available economic facts. It also consists of an interpretation of the manner in which the buyers and sellers might be expected to interpret the available economic facts. In effect, the assessor must be one part engineer, to permit him to determine the physical characteristics of the property in question and the functions which the property is capable of performing; he must be one part economist, to permit him to explore the economic potential of the property; and, in a very real sense, he must be two parts psychologist, to permit him to interpret market behavior and to explore all of those chimerical matters concerned with business motivations and business expectations.

In professional valuation circles it is universally admitted that every valuation problem is, in the final analysis, based upon some sort of interpretation of the motivations of buyers and sellers of property. The operating appraiser usually "solves" these problems by neglecting them or by making various more or less acceptable assumptions. But the question is nonetheless basic, and, particularly in the case of public utility valuation, cannot be so easily pushed aside. Ultimately, questions of *how much* individuals are willing to pay resolve themselves into questions of *why* individuals want to purchase. Although there is fairly common agreement that these are legitimate questions to ask, there is by no means common agreement on the answers. In particular, the question of whether individuals buy on the basis of a careful analysis and a clear delineation of the services which the property may be expected to render or whether they buy largely on impulse is one that can still, in spite of an abundant literature, provoke controversy among economists and among psychologists.[2] It is admitted that "impulse purchases" do exist, of course, but there appears to be an attitude in some appraisal circles that these are to be defined as "irrational" and may not be taken to represent "value." They must, in other words, be weeded out in the valuation process. However, if the value concept being pursued is that technically defined as market value, this conclusion is indefensible. In the first place, it may be that "impulse" describes the motivations of the great majority of buyers, at least in the area of many types of consumer durable equipment, in which case the weeding-out process amounts to a wholesale erasure of the facts presented by the market place. It may be, for example, that very few buyers of this type of property go through the lengthy process of putting money values on the services which they expect the commodity to render and of discounting these at a rate of interest over the time period that they estimate to be the future life of the property. One suspects that there would be far fewer sales of such commodities if this slide-rule operation were widely practiced. In the second place, the application of the label "irrational" represents a prejudging of the issue and a substitution of a set of the appraiser's introspectively determined values for those of the actual purchaser as to what constitutes rational behavior. It represents, in other words, a conclusion that, if this is not the way buyers *are* behaving, this is nevertheless the way they *should be* behaving. Although this kind of subjective element can never be completely removed from the valuation process, the objective validity of the results clearly depends upon its minimization.

It is often assumed that these difficulties are automatically ironed out in the competitive processes, so that, in highly competitive markets, the prevailing values will represent the opinions of "rational" men who are fully apprised of the facts. Whether or not this is true of highly competitive markets is, for the moment, beside the point. It clearly need not be true of those markets that exhibit a low degree of competition. Furthermore, an attempt to develop the notion of what the values *would* have been if the market *were* competitive must be judged to be one of the most fruitless adventures in the whole valuation process. There must be a certain admission that values can exist even though the competitive process is largely inoperative and that these values must be interpreted quite without reference to any preconceived notions as to what constitutes rational or irrational behavior. There are those who claim that this point of view destroys the whole meaning of the valuation process. Although this extreme attitude is not accepted in this report, it may still be that this is indeed the Achilles heel of the value concept. But it is obviously impossible to understand Achilles unless we are willing to look at his heel.

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[1] If the analysis of the existing factual material should yield different answers to each of these questions, the assessor must ultimately reconcile the differences by calling upon his knowledge of the market situation and the manner in which such bargains as are implied in the problem are typically consummated. In the absence of such knowledge, the reconciliation must take the form of an arbitrary averaging of the divergent pieces of evidence. This point is further discussed in Chapter VIII below.

[2] There is an excellent discussion of these matters in Bonbright, James C., *The Valuation of Property*, McGraw-Hill, New York, 1937, pp. 222 et seq. Chapter XI is particularly recommended as a starting point for further explorations into the use of earnings as an evidence of value.

Even though it is agreed that the labels ''rational'' and ''irrational'' should not be used in the interpretation of actual market value figures, it is still necessary to come to some conclusion as to how individuals *do* behave if we are to manufacture values for those properties which have shown no recent sales or to which no comparable sales may be attached. Fortunately, it is generally conceded that the problem of interpreting buyer motives is most severe in the case of those articles of consumer equipment that are purchased for direct use by the new owner, and for these types there are often comparable sales that may be called upon to produce an approximate answer. The suggestion that business-type properties are purchased with an eye to the income they will yield has almost passed beyond the bounds of controversy, although even this apparently obvious suggestion cannot always be accepted without question. What is obvious, however, is the fact that it is this suggestion that has been used to justify the use of earnings data in the valuation of such properties, public utility property included. By the same token, it must be kept in mind that the usefulness of the data depends, at this first level, upon the validity of this interpretation of business motives.

Although this position may be accepted without too many reservations, it is much more difficult to spell out this income consideration in the detail required for valuation work. A fairly consistent body of economic theory has been developed, however, and, with significant variations in the detail, is generally recognized as the basis for the earnings calculations in unit valuation. This theory starts out with the notion that the prospective purchaser of property gives attention to the whole stream of future income which he expects the property to be able to render. It is obvious, too, that the income in question is, in some sense, *net* income,[3] so that the purchaser is involved in an estimation of all future gross income which the property might produce and of all future costs which might be associated with the property. Since the purchaser is interested only in *future* income, all of the past income that the property has actually earned is, if not irrelevant, at least of only indirect interest. Closely associated with this is the idea of the regularity of the flow of expected future income, for the value answers will clearly be different if the annual income is expected to be subject to violent ups and downs than if it is expected to follow a smooth path over the remaining life of the property. The next intellectual step which it is supposed the prospective purchaser would take is the estimation of the time period over which he may assume the property to render the income, in other words, the expected future life of the existing property.

If this is all there were to the purchaser's thought processes, it would simply be necessary for him to add up all of the incomes which he expects to receive from the property in the future (a difficult enough task in and of itself) and express the total as his maximum buying price. There would, perhaps, be some ''buffer zone'' below this maximum to express the degree of uncertainty of his expectations, and this, of course, would be different for different individuals. An intrepid buyer would construct a relatively narrow buffer zone, while a more timorous buyer would insulate his uncertainty with a wider zone. In the first case, the maximum buying price stipulated in the bargaining process would be close to the sum of the expected future incomes, while in the second case, the maximum buying price would be a good deal lower than the sum of the expected future incomes. But the basic process would be the same, and would involve nothing more sophisticated than simple addition.

But the economic theory of buyer behavior goes somewhat further than this: It is also generally assumed that there is a propensity in all of us to hold our wealth in a liquid form, that is, in the form of money. It follows that, if we are to give up present liquid assets in return for assets which are presently illiquid and in return for the hope that they will *eventually* become liquid, we must be offered extra inducements. In this case, the extra inducements take the form of an interest payment. This, of course, is the same thing as saying that, once the total of the expected future stream of income has been determined, we must deduct an amount from this sum to represent this interest payment. The remainder would then be represented as the true maximum buying price. Paradoxically, it is not necessary to *prove* that all individuals are so motivated to prove that they will behave in the way suggested. For even if they did not have a preference for liquidity when they contemplated the purchase of property, the fact that our economic institutions are so organized that individuals *can* obtain interest on their investments is sufficient proof that they will try to do so.[4] It is usual to think of this interest rate as representing not only the preference for present liquidity but the element of risk and uncertainty involved in the expectation of future income as well (see the preceding paragraph). This consolidation is primarily designed to simplify the calculations, however, and does not change the basic interpretation suggested above.

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[3] As is shown below, this is not necessarily the *accounting* sense of *net* income.

[4] There is a large literature on this and related points. For what are, perhaps, the most famous accounts see Irving Fisher, *Capital and Income*, New York, 1906, and, by the same author, *The Theory of Interest*, New York, revised ed., 1930. An elaborate treatment of the whole problem appears in Professor Frank H. Knight's *Risk, Uncertainty and Profit*, Houghton Mifflin, New York, 1921, especially Chapter XI. For a shorter statement see Stigler, George J., *The Theory of Price*, Macmillan, New York, 1946, pp. 324 et seq. The following quotation is from p. 326 of the last source mentioned: "* * * people are held to prefer a dollar now to a dollar a year hence even when the receipt of the future dollar is certain, so interest is a necessary reward to bring forth savings. Whatever the validity of the assertion that people are impatient, the preference for a present dollar is indisputable: a dollar now is equivalent to (1 + i) dollars a year hence because interest can be secured on it for the year. The existence of a positive interest rate makes it sensible to prefer the present dollar * * *."

The theory of behavior suggested above has, of course, been formalized and given a certain sanctity by the application of a mathematical expression. The expected future incomes, computed on an annual basis over the expected future life of the property, form an annuity. It is usually assumed, for simplicity and for want of evidence to the contrary, that the so-called "annual rents" (the expected annual future incomes) are equal, although this is not a necessary assumption. It is then necessary to determine the present value of this annuity for a given period of time and at a given rate of interest, which rate of interest is assumed to contain an element to account for risk as well as an element to account for the "pure" time-liquidity preference. This present value is given by the following equation: Present value of annuity $= R\,a_{\overline{n}|}$, in which R is the annual net income which the property is expected to yield, and

$$a_{\overline{n}|} = \frac{1 - (1 + i)^{-n}}{i},$$

where i is the rate of interest and where n is the expected future life of the property. If the income expectations, R, were those of the potential buyer, the present value so computed could be represented as the maximum buying price. If the income expectations were those of the seller, the present value could be represented as the minimum selling price. The assessor would, having computed both of these prices, proceed to reconcile the possibly divergent figures to determine the reasonable market value of the property.

A statement of this mathematical expression should not be permitted to produce the idea that a valuation process which makes use of the equation is by nature a definite and a scientific process. Once the basic premises are accepted, the mathematical expression follows as a matter of logic. But even if we accept the basic premises (that is, if we accept the view that buyers and sellers do go through these calculations), the value figures which result from the application of the above formula can be no more scientific than the figures that are inserted into the formula. It is to this problem that we now turn.

The above formula shows that, in the computation of present value, there are three unknown elements that must be determined. These are (1) the expected future income to be derived from the property; (2) the expected future life of the property; and (3) a rate of interest to account for liquidity preference, including risk. None of these is represented by data which stand out clearly as verifiable and irrefutable evidence. Each must be laboriously constructed on the basis of still more assumptions about how buyers and sellers themselves might behave. In the end, the answer must be permitted a wide margin of error. It would in no sense resemble a fortress in which an individual could adequately defend his honor and reputation as an appraiser unless, of course, he were to proceed to purchase the property at the figure which he quoted. In the following sections of this chapter, each of these unknown elements is briefly discussed, not with a view to providing a complete course of instruction on their computation, but with a view to describing some of the significant limitations of this approach to unit value and indicating as clearly as possible the points where fact ends and fancy begins.

EXPECTED FUTURE INCOME

If the appraiser of a public utility enterprise were fully acquainted with the theory of buyer behavior set forth briefly in the previous section, and if he were particularly aware of the fact that he is charged with the responsibility of determining the expectations of a group of potential buyers with respect to the future income of the enterprise, he would, no doubt, be impressed by the absence of any ruler, geiger counter, or set of calipers which he might apply to the mental operations of his subjects. Recognizing these deficiencies but still anxious to pursue the most direct path in his valuations, he might adopt the device of taking a poll of a group of individuals whom he considers to be likely buyers of the enterprise. In this case, his questions would simply take the form "what net income do you expect this property to be capable of producing every year over the next 20 years?" (assuming that he had already determined the future life of the property). A conscientious respondent would spend some time examining the records of the enterprise and would perhaps come up with an answer for each of the 20 years. But he would be quick to hedge his reply with something like the following: "But, of course, that depends upon what happens to the level of costs; it depends upon the alacrity with which the public utilities commission grants rate increases; it depends upon how rapidly the present facilities become obsolete as the result of technological changes; it depends upon what happens to taxes (and this, in turn, depends upon a multitude of imponderables)." The appraiser might press his point and ultimately receive a final estimate that would represent a composite of the respondent's attitudes to all of these variables, but he would probably depart wondering whether this individual could be counted upon to act upon his expressed expectations if he were ever in the position of a buyer of the enterprise. When the process had been repeated a sufficient number of times to give the appraiser a "representative sample," he would have grave doubts as to whether the vacillating replies justified the time, the effort, and the expenditure of public moneys.

All this merely dramatizes the conclusion that there is no completely satisfactory way of proceeding directly to the expected future income of the enterprise, as the expectations exist in the minds of potential buyers. The assessor is, for all practical purposes, committed to examining whatever facts are available and making his own estimates on the basis of these facts. But he must never depart from the idea that he is attempting to duplicate the calculations of a hypothetical buyer of the enterprise. He is not so much attempting to estimate what the profits of the enterprise will be as he is attempting to estimate what the expectations of the buyers would be if they had a chance to form them and to express them in a bargaining process. To approach the data with any other thought in mind is to violate the principles which justify the use of earnings data for valuation purposes in the first place. It may be, for example, that the assessor has "inside information" about a substantial rate increase or about a sharp increase in taxes. But, although it adds to the assessor's knowledge of the future of this enterprise, it does not add to the knowledge of the individuals who comprise the market place and must consequently be neglected. It cannot be emphasized too strongly that the assessor is not pursuing some vague and cloudy thing called "real" or "intrinsic" value. Indeed, it is doubtful if such a thing even exists. He is pursuing, in the sense described in Chapter IV, a thing called "market value" and he cannot do this with success if he sets himself above and ahead of the market. On the basis of his "inside information" or his superior calculations, his own expectations of the future profits of the enterprise may actually turn out to be more accurate than those of the market place. But, if he computes this market value according to his own calculations, he has little cause for self-satisfaction. All that has been proven is that he has pursued the wrong concept of value. Even when the market is wrong in its expectations of future events (as proven by hindsight), it is right in its present valuation simply by definition.[5]

This much is commonly understood in the theory but is often neglected in the practice. For the conscientious assessor often finds himself impelled by a desire to refine and purify his techniques and is persuaded to delve ever deeper into the minutae of the calculations. In so doing, he tends to neglect the probability that many of these matters are heavily outweighed in the considerations of the market by the larger difficulties of forecasting.

The most important facts at the disposal of the assessor with respect to the earnings evidence of unit value are, of course, contained in the income statement of the company itself. But these facts all relate to *past* accounting periods and must be held to be woefully inadequate unless it is possible to show some reasonable relationship between past performance and future expectations. Certainly no *precise* relationship may be claimed, but it seems reasonable to assume that a potential buyer of the enterprise would consult the records of the company for 5 or 10 years and would then tend to give more weight to the records of immediately past years. It is consequently doubtful that a simple average of the net incomes of the preceding five years (say) would be entirely satisfactory, for this would not permit the interpretation that a buyer tends to emphasize the more recent experience.

The question remains as to what *kind* of records of past performance the potential buyer is likely to examine. Insofar as he is interested in deriving his expectations of future profits, he will, as suggested, emphasize the annual income statement of the enterprise. But he is not likely to take this income statement at its face value, for, if he is a prudent individual, he will recognize that accounting practices are often a matter of convenience and are not always strictly representative of the actual operations of the enterprise for any one year. He will be particularly careful to go behind the cost figures, for he will understand that these costs may reflect the conservative attitudes of the present management, or, perhaps, the opportunities to receive extra advantages under the income tax by way of accelerated depreciation, or the effects of over and under accruals of taxes in previous years, and so on. To be sure, these difficulties appear to be less important in the area of public utility valuation than in the area of the valuation of many other large industrial enterprises, for public utility accounting practices are typically subject to regulation by state and federal agencies. These regulations tend at least to produce uniformity in the accounting practices even if they still leave abundant scope for a thorough exploration by any potential buyer of the property. A more important possibility in the public utility case is that the buyer may feel that the present management of the enterprise has been inefficient and lax, and that the property is capable of producing much higher incomes if it were more carefully operated. It is clear, of course, that the expectations of future profits which are expressed by the buyer, reflect his ideas about how *he* might administer the enterprise.

When the potential buyer sets out to explore the income statement of the enterprise he is merely attempting to clarify the past records preparatory to forming his own expectations of the future. But there must be some point beyond which the "corrections" he might make to the records would fade into insignificance, when compared with the great liberties which he must be prepared to take with respect to the expectations themselves. For example, he could hardly be expected to make corrections of the magnitude of $100, valid though they might be, if the reported net income of the enterprise in that year were $60,000 and if he expected the net income of the following year to be anywhere between $58,000 and $75,000. Naturally, there is no way of knowing at just what point the buyer is likely to draw the line on the amendments he is willing to make to the company's records, but the assessor should certainly recognize that some such point exists and should then refuse to carry his own calculations beyond this point into the regions of the trivial. Although the desire for a purity of technique as exhibited by the conscientious assessor is, in itself, a commendable thing, it is still true that an excessively intense interest in the leaves of the trees is likely to obscure the very important outline of the forest.

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[5] This point adds a further note of ridicule to the notion that valuation must always be based upon the assumption of a perfect rationality of the buyers and the sellers. In the first place, it raises the question of a difference of opinion. If it is insisted that both the potential buyer and the potential seller be "rational" men, and if the term "rational" is taken to mean that they would both come to the same conclusion with respect to the expected future profits of the enterprise, no sale of the property would take place. As in the stock market every bull must be able to find a bear (in the relative sense) before a sale can be consummated, so with the sale of any income property the seller must always expect future profits to be lower than those expected by the buyer. If the term "rational" is defined in such a way as to allow for differences of opinion while both parties are nevertheless pursuing a "rational" (i.e., "reasoning") process (as it *might be* defined), then specific conditions must be established which distinguish between "rational" and "irrational." These conditions must, by nature, be arbitrarily established, and would probably reflect the self-satisfied introspection of the lexicographer. In the second place, it is clear that rationality cannot be defined by hindsight, that is, we cannot define a rational process as one which always leads to the right answer. There may be a *conceptual* distinction, but there is no way to *locate* and *quantify* the distinction in specific circumstances. Furthermore, of course, the assessor is not permitted to assess by hindsight, for his assessment must relate to the present expectations themselves and not to the later proof of those expectations.

It is generally held, as pointed out in Chapter IV, that the basic unit of property for valuation consists of the *operative* property of the company. In the income calculations, this emphasis obviously means that the assessor will consider only the net income that relates to this operative property. In the case of railroads, this is usually given as ''net railway operating income,'' while in the case of gas and electric corporations and telephone companies it is usually given as ''net operating revenue.'' In both cases the concept describes the revenue which is derived from the operating property, reduced by the costs associated with the operating property, with these costs determined before the payment of interest on the debts of the corporation or any dividends which it distributes on its stock issues. It must be understood, however, that this first distinction between the net income derived from the entire operations of the enterprise and that derived from operating property only is a somewhat artificial one and is itself subject to certain arbitrary accounting distinctions. It is, of course, not too difficult to allocate *gross* revenues between the operating and the nonoperating properties. But it is more difficult to allocate some of the costs of the enterprise to these two categories. For example, to what extent are the salaries of the executive officers legitimately included as operating expenses and to what extent as nonoperating expenses? And how should the expenses of executive office buildings be allocated. To what extent should the income tax be associated with the nonoperating property? For most utility enterprises these are no doubt unimportant matters and the arbitrary accounting distinctions may be accepted without question. For railroads, which often possess large amounts of nonoperative property, the difficulties may be more severe, although each case would have to be examined on its own merits. In any case in which the assessor cannot have complete confidence in the allocation of net revenues (because of his lack of confidence in the allocation of costs) he would do well to consider the basic unit of valuation to be the *total* property of the enterprise rather than merely the operating property of the enterprise. This point, too, was briefly discussed in Chapter IV.

One of the most difficult items in the expense portion of the income statement which must be accounted for in the valuation process is that of depreciation. Even with the accounting standardization that regulation has tended to produce, a buyer of the property (and hence the assessor) cannot be confident that the depreciation expense is truly representative of the actual depreciation of the property during the accounting period. There are, of course, many ways of calculating the amount which the managers of the enterprise think should be set aside to represent the financial preparation for the physical retirement of the property. None of these has yet been accepted as the ''final word'' in depreciation accounting. The matter is still largely an open question as far as economic theorists and accounting theorists and practitioners are concerned. It seems apparent that most assessors, because of time limitations and financial limitations (and staff limitations which this latter implies), simply accept the depreciation figure which appears in the income statement, with, perhaps some upward or downward revision to take account of the more obvious deficiencies. The more generally accepted technique, however, is that adopted by the Valuation Division of the California State Board of Equalization. This starts out by completely disregarding the figure for depreciation expense as used in the company's accounts. This is followed by an independent computation of the future life of the physical property of the enterprise and, usually, the application of the so-called ''sinking-fund'' technique to spread the annual charges out over this life. The sinking-fund method has the effect of building up a fund which, when invested at some rate of return (usually assumed to be the same rate used in the capitalization of the income), will, at the date of eventual retirement, be equal to the present value of the property. The Valuation Division does not attempt to determine the annual depreciation charges by this method (although this would be possible) but instead determines an annuity rate which, when added to the ''basic'' interest rate used in the capitalization process, accounts for depreciation. This also means, of course, that the net income figures to which this composite rate is applied, must be computed *before* depreciation, that is, it must neglect the particular figure for depreciation expense included in the income statement of the company. The method technically requires the computation of an expected scrap value as well as of the expected future life of the property, but this is sometimes omitted (as in California) by computing the future life of the property to a point where its scrap value will be so small that it may be neglected.[6] In any event, the essence of this technique is that the appraiser recognizes the possibly misleading character of the income accounts and prefers to substitute his own calculations. These calculations must, presumably, be based upon a firm knowledge of the physical characteristics of the property in question, its present state, the intensity of its use, the weathering conditions, the normal maintenance policies of the enterprise, and so on. It is at this point that the assessor and the hypothetical buyer of the property must seek the expert advice of the engineer.

The figures for income taxes paid or for income tax accruals made during the year represent other difficulties which face the assessor and the buyer of the property in the interpretation of the annual income statement of the company. If the company uses the accrual method of accounting to prepare for its income tax liability it may later find that it has overaccrued or underaccrued, and may compensate for this in the following accounting period. This, of course, would make the accruals of *either* period unrepresentative of the tax expenses of that period. In addition, there are circumstances which often arise which require an adjustment for taxes actually paid as far back as four or five years prior to the current accounting period, and these, too, may give some artificiality to the current figures.[7] Furthermore, the tax liability itself will be determined, in part, by the capital structure of the enterprise. This is true because of the way the income tax is constructed, so that interest on the bonded indebtedness of the company is permitted as a deduction in the computation of the tax base while the dividends paid on capital stock are not. This, in turn, means that, of two corporations with identical property and with identical total capitalizations, the one with the larger percentage of bonded indebtedness in its capital structure will have the lower income tax liability and will consequently show a better net income performance on its books. This may be represented as an artificiality in the valuation of the physical property of the enterprise (as required for the California property tax), although this artificiality is by no means apparent in the valuation of the enterprise as such.

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[6] This method of calculating depreciation for purposes of income capitalization is given only brief mention at this point. It is described in detail in Chapter IX as the technique currently used by the Valuation Division of the State Board of Equalization, and illustrated for sample companies in Chapters X through XII.

All of these problems of tax accounting require special consideration by the hypothetical buyer of the property and by the assessor. Once again, it seems that the usual device among assessors involves the acceptance of the book figures adjusted for the more obvious artificialities. In California, however, a somewhat more sophisticated technique is in the process of being developed and was actually applied as an alternative computation in the calculations of the 1952 assessment. Briefly, this technique involves the assumption of a series of ''standard'' capital structures, the computation of a hypothetical tax, and the adjustment of the capitalization rate to take account of this tax. Of necessity, of course, it also involves the application of the capitalization rate to a net income figure computed before taxes (actual or accrued) are deducted. In other words, it involves capitalizing a net income figure which contains no reference, in the operating expense section of the income statement, to income taxes. In this respect, it is similar to the techniques of accounting for depreciation. The question remains, however, whether the hypothetical buyer of the property, whose mental processes the assessor must attempt to duplicate, can be expected to go through the same calisthenics. It may be, for example, that he is much more concerned with estimating or guessing at what the government is likely to do to the income tax in the future than he is with attempting to refine and clarify the past records of the company beyond the broadest kinds of adjustments. This, however, must be left as an open question.

THE EXPECTED FUTURE LIFE OF THE PROPERTY

The second unknown element in the formula for the computation of the present value of a future income stream is that which indicates the length of time over which the existing property is expected to produce an income. Little need be added to the comment of the previous section. It is clear that if the assessor chooses to neglect the depreciation figures in the company's income statement and to compute his own figures on the basis of his calculations of the future life of the property, the same information may be used for present purposes. In effect, it is the purpose of the present step to discover the number of years the property is expected to be in service, while it is the purpose of the depreciation calculation to determine the specific shape of the depreciation schedule or, in other words, the *rate* at which, in any one year, the property approaches its final retirement.

Once again the assessor must attempt to reconstruct the activities of a hypothetical buyer as the latter may be expected to examine the data and records of the past to construct his estimates of the future. In this case as in the case of the income calculations, the assessor must, by indirection, attempt to estimate somebody else's expectations. Here, too, the accuracy of the assessor's calculations may not be determined in any final way by hindsight (as individual items of property are retired from the system), but only by reference to the sort of calculations that a potential buyer would have been able to make on the basis of the same evidence that confronted the assessor. If hindsight should prove the potential buyer to be wrong in his estimations, the assessor will have been ''most right'' (that is, most accurate in his *assessment*) when he is proven to be as wrong as the buyer.

This seems to be the least controversial set of calculations of the three that are required in the income capitalization method of valuation. For the same reasons, there seems to be less possibility of serious difference of opinion between several individuals who might make the calculations. There are, however, several points at which the process becomes highly speculative. These require further attention.

For the great bulk of the property of most public utility enterprises, the future life may be estimated fairly satisfactorily by the use of studies of past experience. For example, a telephone company will usually have a set of historical records which indicate the average life of a wooden pole from its installation to its retirement. This information may be applied directly to the existing poles in the system if it is also known when these poles were installed. From this information it will even be relatively simple to adjust for any innovations in the manufacture or installation of this kind of property. In some cases, of course, the special circumstances which surround the particular item of property must be carefully considered, such as those concerned with the location of the property and the consequent effects of the weather, the intensity of the use of the property, and the like. Once again, however, these circumstances are often adequately described by the historical experience of the company.

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[7] One such situation is described in Chapter XII for the Atchison, Topeka and Santa Fe Railway Company in the determination of the 1952 assessment for this company.

There are some cases in which historical records are inadequate in the estimation of the future life of the property. Problems of this sort arise, for example, when the item of property has such a long life and has been installed so recently that there is no actual evidence of retirement. It may be that other companies have had more complete experience with properties of this type and certainly such data may be used in the assessment process. However, if such comparative information is absent, the estimation of future life must amount to something close to pure guesswork.

Somewhat similar problems arise when it becomes necessary to estimate the future life of a major new innovation. In this case it may be difficult to predict the life of the new equipment itself, and, in addition, to quantify the effects which the innovation will have upon the old equipment. Consider, for example, the application of atomic energy to the electric power industry and the difficulty that would be associated with predicting the life of everything from the radioactive pile to the distribution system and with describing the additional effects upon the existing generating plant through obsolescence. These matters are property subjects for engineering analysis and there is no particular reason to suppose that the engineers employed by the assessor would come up with markedly different answers than the engineers employed by a potential buyer of the property.

One other problem must be briefly mentioned in this section. This is the problem of how to treat land in the process of capitalizing net income. It has already been pointed out that the capitalization process requires the determination of a finite period to which the expectations of income from the existing plant are applied. Let us assume that the expected future life of all of the operating physical property *except* land is determined to be 30 years, with no scrap value at the end of that period. It is assumed that the property will produce an income over the 30-year period, and this income will represent the combined contributions of the land and the nonland items of property. Thus, when this expected income is capitalized for the 30 years, the resultant figure will represent, in part, the contributions of land to present value over that period. It is further assumed that the nonland property will be reduced to rubble at the end of the period, but that the land will exist in an "undepreciated" form. When all other property has vanished the company will still be able to sell the land. It is consequently necessary to make a positive adjustment to the capitalized income figure to represent what the company could get for the land if it were to sell it in 30 years. In a sense, this might be said to involve the calculation of a "scrap value" for land when all other property has been used up in the productive process. Obviously there is no way of predicting what the company will be able to sell the land for at that distant point in the future. As a result, a fairly common rule-of-thumb calculation is based upon the assumption that land will bring the same amount as it would *now* bring if all improvements and personal property were removed and the land were offered for separate sale in the market place. The determination of this latter figure, of course, requires a separate land appraisal, usually based upon the current market prices of contiguous parcels. But it is not proper merely to add this amount to the capitalized income figure, for the company must wait for 30 years to realize this amount. In view of this condition, all that remains is to determine the present value of an amount of money realizable after 30 years, which amount is taken to be the amount of money that could be received for the land if it were sold now. The rate of interest used in this calculation is generally considered to be the basic rate of interest used in the capitalization of income itself for want of any better figure. In the present calculations employed by the Valuation Division of the State Board of Equalization this adjustment is called a "land reversion."[8] Because of the nature of the capitalization process, the land reversion adjustment will always be less than the figure shown for the current sales price of the land. The difference, of course, is accounted for by the assumption that over the 30-year life of the nonland items the "value" of land is included in the income figures themselves. As such, it has already been accounted for in the process of capitalizing these income figures for the 30-year period, and should not be counted again.[9]

The solution to the problem of how to treat land, as an undepreciable item of property (as is assumed), is offered on the grounds of logic alone. It is not known whether there is a tendency for buyers of similar properties to go through the same processes in determining their buying prices. Consequently, it is impossible to offer unequivocal testimony to the validity of the computation itself. But for the other items of property there is reasonable agreement. Both the assessor and the potential purchaser of the property have a set of more or less definite facts to consider, and, although the specific computational details may differ, there is no reason to suppose that they will consider these facts in different ways.

THE RATE OF INTEREST FOR CAPITALIZATION PURPOSES

Of the three unknown elements in the capitalization formula the interest rate has been elevated to a position of somewhat questionable honor, viz., that of being the most controversial. The controversy has been concerned with matters ranging all the way from those broad psychological problems of *why* a rate of interest is necessary, to the narrower problems of *how* the rate of interest for capitalization purposes should be constructed. There has not been complete agreement on either of these issues or upon the issues which lie between them. These controversial issues cannot be explored here in any detail because it would not be possible to offer any conclusions unless complete theoretical models were developed and the empirical information available were fit into these models. The time available for the present analysis does not permit such elaboration. As a result, this discussion is restricted to one or two suggestions which appear to be justified in theory and which may be taken to point to certain areas of empirical research.

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[8] The land reversion adjustment is more fully described in Chapter IX below and its computation and application illustrated for sample companies in Chapters X through XII.

[9] The land reversion adjustment is made *after* the capitalization formula discussed above has been applied and the present value of the property determined. A discussion of the adjustment is introduced at this point, however, insofar as it clearly does represent a problem that is directly associated with the determination of the expected future life of the enterprise. It means that the n term in the capitalization formula refers only to the nonland items of property, so that, to this extent, the formula is incomplete and the calculated present value is not completely accurate.

It was pointed out earlier in the present chapter that it is unnecessary to probe deeply into the psychological attributes of the human species which are often said to make interest a *necessary* payment. The fact remains that, as our financial system is presently organized, individuals *are* able to obtain an interest payment for the act of giving up present money in return for the hope of future money. It is a fact, too, that individuals *are* able to demand higher interest payments if there is some risk attached to the repayment of all or part of the principal. These features seem to be capable of explanation in terms of basic psychological attitudes, in the sense that a greater economic flexibility and security attaches to the holding of money than to the holding of goods (with some exceptions). The additional payment for risk seems to come from man's proclivity for pessimism, i.e., his tendency to hope for the best but to fear the worst. Certainly this cannot be explained purely in terms of the uncertainty of the expectations, for uncertainty can just as easily describe the ''risk'' of receiving a higher return than expected as the risk of receiving a lower return than expected. But fortunately we do not need to invoke these analyses to show that an interest payment must be considered in these calculations. Even a miser who would save his money without the inducement of an extra interest payment would find it sensible to accept this interest payment if the market place shows a willingness to make it available unless, that is, he computes the risks of all investments in some compulsive, pathological way. It is enough to say that interest exists as an institution in our society and that it is therefore something to consider in describing the attitudes with which an individual approaches any single transaction.

But in what specific way does this interest payment enter into the sort of hypothetical transaction which is the basis of our valuation problem? As a first step we may assume that this hypothetical purchaser presently possesses a sufficient quantity of money to pay cash for the enterprise he is interested in buying. With this quantity of money there are many other investment opportunities open to him. He could therefore lend the money to someone else and demand an interest payment in return. In view of this possibility, he would be foregoing an opportunity if he did not make similar demands for the property which he purchased.[10] With a given set of expectations of the income that this property is capable of producing, he will express his buying price as something lower than that which would obtain if there were no other investment opportunities that would pay an interest to him. If we want to explain *why* the rate of interest exists in the first place, we clearly must be prepared to go much further than this analysis of ''opportunity costs'' (as they are sometimes called). But in the valuation of a single enterprise it is legitimate to consider the thought processes of the hypothetical buyer as he approaches *this particular enterprise*, and not how he approaches the whole economic process. We do not have to delve into the innermost reaches of the psychological attitudes of everybody in the community to prove that *this* individual would be missing an opportunity if he failed to take out his interest by applying a capitalization rate to the income he expects to receive from *this* property.

Simply stating, however, that our hypothetical buyer of the public utility system would apply an interest rate in the capitalization process does not indicate *what* rate he would apply. It is at this point that we must begin to look a little further, not necessarily into his own psychological attitudes, but into the character of the financial market in which he carries out his operations.

It is often said that an investment in a Federal Government security represents a ''riskless'' investment. By this it is meant that an individual who invests in Federal Government securities can be as sure of getting back his principal with the stipulated interest as he can be of anything in the investment world if he is willing to wait until the maturity date. But the interest rates on the several types of government securities show some dispersion within the category. This dispersion is explained, not in terms of the differing degrees of risk attached to each type, but in terms of the duration of the loans, with, of course, the longer loans having the higher interest rates. This may be taken as a fact which, for purposes of the present analysis, need not be further explained. If an individual contemplates an investment of a certain duration, he may refer to the government securities market to see what opportunities are open to him in that area. Furthermore, these opportunities tend to be *real*, for the competitive characteristics of the money market permit a fairly easy transformation of an investment portfolio. For our purposes it is fair to assume that these opportunities are ''riskless'' opportunities. It may be said, then, that one of the rates of interest on government securities will always be a component part of any capitalization rate. The specific government rate that will be applicable will depend upon the length of time for which this capitalization rate is to be applied.

The additional component of the capitalization rate will always be a personal thing. It will always represent the personal calculations of the investor. Even though the investor may choose to consult the attitudes which other investors are expressing in their purchases of this company's securities, he will ultimately have to make up his own mind. If he has tendencies to speculation in his investment policies he will add only a small risk premium and his personal capitalization rate will tend to approach the rate on the government security with a comparable time period. Under these circumstances, of course, his offer price would tend to be relatively high. If he has tendencies to conservatism in his investment policies he will add a large risk premium to the "basic" interest rate and the difference between the rate on governments and the capitalization rate which he applies will be larger. Under these conditions, his offer price for the property will tend to be relatively low. Once again, then, we come face to face with the old difficulty of trying to search out the thought processes of the hypothetical buyer, this time in an attempt to see what risk he associates with the income expectations which he has expressed.

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[10] Similar reasoning would be involved if we were to start with the assumption that he does not now possess the money in sufficient quantity to pay cash for the enterprise. In these circumstances he would obviously have to borrow and the costs would appear not as an opportunity foregone but as the very real interest payments made to the lender.

There is no completely sure and certain way of conducting this search, but, as pointed out above, it may reasonably be assumed that this hypothetical buyer would at least consult the opinions of the other investors in the market as they, in part, express their own attitudes as to the riskiness of the enterprise in the prices they are willing to pay for the stocks and bonds of the corporation. A study of the yields of the company's security issues, perhaps with special attention to any new issues, will, then, be the typical starting point for the assessor in his calculations of an interest rate for capitalization purposes. But it must be understood that the process is not purely mathematical at this point. It is not the "cost of money" to the company that is the thing to be discovered in these computations, but rather the manner in which a hypothetical buyer might be expected to account for the risk of his investment. The yields of corporate securities express more than this narrowly conceived risk element, and include such things as the capital structure of the corporation, the specific repayment provisions attached to the various issues, the "contingent" character of dividend payments, and so on. But at least there seems to be agreement that an analysis of security yields must be the starting point.

It is obvious that this discussion has merely scratched the surface in this account of the process of determining the capitalization rate. But enough has been said to indicate that the problem has no easy solution. It is sometimes said that the income capitalization method of valuation must stand or fall on the strength of the assessor's ability to determine an accurate capitalization rate. It must be agreed that the method can fall if the capitalization rate is treated in a careless and offhand way. But it is not agreed that it automatically stands unchallenged if the capitalization rate is determined by the most scientific methods available. There are, after all, two other elements in the process, either of which could produce quite misleading answers if incorrectly handled. Indeed, it may be said with some justification that there is more hope of solving the problems that relate to the capitalization rate than of solving those that relate to the income magnitude itself. It has too often been assumed that, once the income statement is appropriately adjusted to show the "real meaning" of the year's operations, all problems that relate to income have been solved. But the gap between the actual income of the year (or even of a series of years with a trend applied) and the annual incomes which a potential buyer expects to receive over the remaining life of the property is a big one and remains despite all attempts to purify the records of any past year. This problem has been recognized in the literature on the subject, but it has sometimes been associated with the idea that the relationship between realized income and expected future income is basically indeterminate and that the assessor is thereby committed to applying the capitalization rate to the realized magnitude, on the admittedly unproven *assumption* that the realized income will be the most probable income for all years in the future. This conclusion clearly solves the problem by avoiding it and valuation answers are not made more accurate by the acceptance of such a solution.

The courts have sometimes been willing to accept the capitalization of realized earnings more readily than the capitalization of expected future earnings. But if this favoritism cannot be supported by economic logic it cannot be said to be conclusive (even though it may be *effective*). The discovery of *"true"* market value is the first aim of assessment equalization. Equalization itself is given purpose by the connections (sometimes tenuous, to be sure) between equalization and equity. The courts do have something to say about equity (that is, fairness) in taxation through their responsibility for interpreting the constitutional provisions that deal with "due process" and the "equal protection of the laws." But equity is not entirely and alone a juridical matter. If, at some point, the problem of equity passes beyond the logical jurisdiction of the courts, the problem of valuation, as one of the bases of equity in taxation, also passes beyond the logical jurisdiction of the courts.

CHAPTER VI

THE STOCK AND DEBT EVIDENCE OF UNIT VALUE

In Chapter IV some of the more important ideas which lie behind the principle of unit valuation were developed at length. These ideas were used to show that the property tax assessor must choose, in the valuation of *any* kind of property, some "basic" unit of property and agree not to determine the market value of this unit by adding up the quasi-values of any smaller units. The choice of the basic unit itself, it was pointed out, involves a consideration of two kinds of boundaries, the boundaries of functional relationship and boundaries of ownership. When these matters were applied to the more specific problem of public utility valuation it was seen that, for all practical purposes, the smallest unit that may logically be selected is the entire operative physical property of the enterprise. This, in turn, led to the suggestion that the assessor could not hope to find any large number of actual market sales for this unit and that he was consequently forced to be content with a manufactured substitute. Some of the theory and a little of the detail of this manufacturing process were spelled out in Chapter V.

In the discussion of the role of earnings in unit valuation little was said about the assumed character of the hypothetical sale transaction itself. Indeed, the impression may have been created that the theory assumes a bargaining transaction between a single potential buyer and a single present owner of the enterprise. It is true that this assumption is useful in developing the analysis of market motivations and this analysis serves as the basis of the capitalized income method of valuation. But it is clearly not an accurate description of any hypothetical sale that aspires to realism. In the stock and debt method of valuation this difficulty cannot be avoided. An understanding of the nature of the sale transaction is, indeed, the starting point in the stock and debt approach.

It must be pointed out first that all of the following discussion relates only to an enterprise that is organized as a corporation since the stock and debt method of valuation can be applied only to the corporate form of business organization. From a practical point of view, one is also restricted to a situation in which the securities of the company are widely held and regularly bought and sold in the market place. This latter restriction is not absolutely necessary for the description of the sale transaction itself, since it is quite possible to construct a hypothetical market situation even for those corporations whose stock is held by a single family and is transferred only through the inheritance process. However, in those cases where the securities are closely held, and infrequently traded, the available data lose most of their significance as they are applied in the valuation process.

Within this framework it is still possible nevertheless to assume that there is a single hypothetical buyer of the property.[1] But it is no longer either realistic or useful to assume the existence of a single present owner. The assumption that the capital stock of the corporation is widely distributed is, in fact, tantamount to an assumption that there are many individual owners of the enterprise, for each share of stock outstanding represents an ownership interest in the issuing corporation.[2]

If, then, the hypothetical buyer were to attempt to purchase the entire enterprise he would have to begin by purchasing all of the capital stock, of whatever type, currently outstanding. For purposes of property tax assessment, however, we must think beyond this purchase of mere ownership, as represented by the purchase of capital stock. The typical corporation also has a large amount of outstanding debt, in the form of its issued bonds, debentures, various other types of long-term debts, and many kinds of current liabilities. These debts are clearly in the nature of encumbrances upon the property that is purchased in the capital stock transaction. The buyer of the property must either assume these debts and pay them off as they mature or "purchase" the debts at the same time he purchases the capital stock. It is perhaps easier, for the moment at least, to think of the buyer of the capital stock actually buying the debt obligations of the company from the company's creditors. This obviously means that one must think of a hypothetical buyer going to the capital markets and buying all of the bond and debenture issues of the corporation; approaching the firms or individuals who hold the short-term paper of the corporation with offers to purchase; and probably even satisfying any claims against the company for injuries sustained by employees or for damages to property owned by others. The stock and debt method of valuation therefore requires thinking not only about a purchase of property but also about a purchase of property "free and clear" of all debts.

This point can be made more clear by the suggestion that the case under discussion is in no essential respect different from that which would confront the assessor if he were examining the actual purchase of a piece of residential property. No one would insist that the market value of the property was equal to the equity which the new buyer obtained in the property in the act of purchase. The assessor has not determined market value when he has discovered the cash down payment, for in many cases this is only a small fraction of the total market value. The value of the residential property must be said to be equal to the value of the purchaser's equity plus the value of the mortgage or other outstanding debt against the property. Similarly, in the case of the public utility corporation, it is necessary to consider the total equity acquired by the hypothetical purchaser, as this is represented by the capital stock he purchases and all of the debts of the corporation. Furthermore, this injunction is not affected by the distinction between long-term debts (40-year bonds, for example) and short-term debts (notes payable in 90 days, for example). It is the fact of the debt and not the duration of the debt that is important.

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[1] This, of course, may be an individual, but it would more probably be another corporation.

[2] This, of course, is a highly simplified statement of a more complicated notion. There are, after all, several different kinds of ownership interest, distinguished by the specific "rights" (voting rights, dividend rights, and so on) that are attached to the various stock issues. For present purposes, however, these matters are largely irrelevant.

This, then, is the essence of the stock and debt approach to unit value. In some way the assessor must determine the market value of all of the outstanding capital stock and add this to the market value of all of the outstanding debts of the enterprise. Up to this point, however, the analysis tells the assessor only what to look for; he still must know where to look.

Just as the income statement, as prepared by the corporation for the information of its stockholders, is the starting point for the construction of the earnings evidence of value, so the balance sheet, as similarly prepared for the stockholders' benefit, is the starting point for the construction of the stock and debt evidence. Not all of the items that appear on the balance sheet need to be considered in this process, however, and the first problem consists of deciding which of the specific items should be examined and which may be ignored.

In the stock and debt method of valuation, the market value of the assets is determined by looking at the liabilities. Consequently the items which may be ignored in the valuation of the enterprise are those which appear on the asset side of the balance sheet. There are, however, several other factors that seem to indicate the possibility of ignoring some of the liabilities as well. According to the unit rule (as described in Chapter IV) the market value of *all* of the assets listed in the balance sheet is not of importance. The only assets which must be valued under the unit rule are those which describe the operative physical property of the enterprise. Furthermore, certain asset items represent property which is defined both in the California Constitution and the Revenue and Taxation Code as not subject to assessment by the State Board of Equalization. Unfortunately, however, there is no way of drawing a parallel distinction on the liability side of the balance sheet. In other words, it is impossible to relate *specific* liabilities to *specific* assets. To be sure, there may be very important relationships between these specific items from the point of view of business management, connections which any buyer of the property or any investor in the securities of the enterprise would be interested in exploring. But from the point of view of the rather particular kind of valuation problem under consideration here no such relations can be located. It cannot, for example, be claimed that the market value of the operating physical property is equal to the market value of the capital stock and funded debt; or that the market value of the current assets is equal to the market value of the current liabilities. The only legitimate relation between the two sides of the balance sheet that may specifically be established for purposes of property tax valuation is that which is contained in the simple accounting axiom that total assets equal total liabilities.

The inability to locate relationships between specific items in the balance sheet means that it is necessary to amend the unit rule of valuation. In this as in so many other situations, the principle must be tempered by the character of the evidence. The amendment to the unit rule suggests that, insofar as stock and debt evidence may be used, one must first attempt to establish the value of the *enterprise* as an operating business unit, and then, if necessary, make certain adjustments to this value to determine the value of the *operating physical property*, or, perhaps, to make other adjustments to the enterprise value and move directly to the value of the *taxable* property.

The present difficulty is comparable to that which arose in the discussion of the earnings evidence. In Chapter V it was pointed out that the accounting distinction between net operating income and net income from all operations is sometimes arbitrary in the extreme and cannot be accepted by the assessor without question. It was also pointed out that when the assessor lacks confidence in the accuracy of this accounting distinction he would do well to consider the entire enterprise to be the basic valuation unit and not merely the operative physical property of the enterprise. While the unit rule of valuation logically stresses the functional relationships between the individual items of operative property as providing a minimal definition of the valuation unit, it appears that the evidences which can be used in the valuation process often do not support this minimal definition in practice. In the literature on the valuation of property for tax purposes this point has often been obscured by the tendency to develop a logical analysis and then to proceed on the unexplored assumption that this logic is always matched by the accounting practices of the company, or at least that the differences are so slight as to be worthy of neglect. In many cases, however, this assumption is unrealistic.[3] As a result, it may be that too much emphasis has been placed upon the boundaries of functional relationship and not enough emphasis has been placed upon the boundaries of ownership. At least this judgment seems to be supported by the nature of the basic evidence that lies behind both the capitalized income approach and the stock and debt approach.

Even though it is not possible to eliminate certain specific liability items because they represent either operative property or property which may be assessed by the State Board of Equalization, it is possible to omit certain of the liability entries in the determination of *market* value.[4] In general, the items which may be omitted are those which indicate ''debts'' in the accounting sense only, and which are not legal debts in the sense of obligations of the firm to someone outside the firm. Such ''artificial debts'' include all of the reserve accounts and all of the surplus accounts that appear in the balance sheet.

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[3] This statement should not be taken to be a criticism of the accounting profession or the logic of its practices. It is freely admitted that the motives of the accountant consist of considerably more than the provision of neat and logical data for the property tax assessor.

[4] The term "liability" is used throughout in its broadest sense, to include both capital accounts and surplus accounts—in other words, everything that normally appears on the right-hand side of the balance sheet.

Of the several reserve accounts, the depreciation reserve is usually the most important and has certainly been the subject of greatest controversy. It is recognized that this account may be higher or lower than would be justified by a careful and scientific construction of the accounting system, and may reflect the idiosyncracies of management as much as the logic of the accountant. The degree of caution or courage with which the business is conducted and the existence of such other inducements to accounting manipulation as are contained in the federal income tax may largely determine the magnitude of the depreciation reserve account. In the stock and debt valuation the size of this reserve account is of no consequence. Indeed, the valuation results would not be affected in any direct way even if the depreciation reserve were equal to the book figures for total plant and equipment. Depreciation reserves (and other reserves as well) will, no doubt, have an important effect upon the market prices of the securities of the company, but these effects will not be shown in the balance sheet.[5] In the same sense, the dividend distribution policy of the company, as partially represented by its earned surplus account, is likely to have important effects upon the market price of the company's securities. Once again, these effects would not be described on the balance sheet. Furthermore, if both the market prices of the securities and the surplus accounts, as well, were considered one would be guilty of a kind of double counting. The reserve and the surplus accounts are not ignored because of any lack of confidence in the accounting methods, however. They are ignored only because they do not represent true debts which the buyer of the property must assume. In a sense, they represent ''debts'' which the firm owes to itself, and, as such, are clearly not part of the valuation process.

The liabilities that must be considered, then, consist most importantly of (a) the capital stock items, including common stock and preferred stock; (b) all of the long-term debt items, such as bonds, debentures, etc.; (c) all of the current liabilities, such as notes payable, accounts payable, customers' deposits, and so on; (d) all of the accrued liabilities, such as taxes accrued but not yet due; and unmatured interest, dividends, and rents accrued. Occasionally, particular attention must be paid to some accounts not included in the above items. One such account is that usually referred to as ''Other Deferred Credits.''[6] Some of the entries in this account represent so-called ''outside'' liabilities and must be considered in the valuation process, while others represent so-called ''inside'' liabilities and must be neglected.

It is important to realize that in the pure theory of the stock and debt method of valuation the balance sheet may be used merely as a guide and not as a measuring rod. The assessor is interested in market value magnitudes and not in the dollar figures of the accountant. The only figures which the assessor may extract from the balance sheet (once again, in pure theory) are those which inform him of the number of shares of each type of capital stock issue outstanding and the par value of the various long-term debt issues. For the rest, the assessor must go to the market place, and the balance sheet tells him only the *kinds* of things for which he is to attempt to find a market value. Unfortunately, however, the character of the market place is not such as will permit the application of the theory with this degree of finesse. For many of the current and accrued liabilities no market exists and the assessor must either construct his valuation upon sheer guesswork or accept the balance sheet figures. Generally, the latter technique is to be preferred.

The next step in the valuation process consists simply of the discovery and the use of the market prices of the various stock and debt issues of the company. In and of itself this step is an extremely simple one, for it involves only the collection of the selling prices of the various kinds of securities as of some selected point in time and the multiplication of these prices by the number of shares outstanding or the par value of the issue at that time. To the extent that this information exists it is readily available in daily newspapers and financial chronicles and journals. In some cases, of course, the data will not exist in the form of reported selling prices and it may be necessary to be content with ''bid'' prices as a close approximation. Some issues of the company in question may be infrequently traded, so that the assessor has no choice but to include them at their book figures. If there are very many such issues, however, the whole stock and debt method is invalidated and must be abandoned for this company.

It was stated above that the process of collecting market data is without complication. This is true only on the assumption that the assessor has been able to solve one important theoretical problem. This is the problem of *timing* the data collections. He must, in other words, ask himself the question ''to what points in time shall the market prices refer?'' At first sight this problem would seem to be a spurious one. The Revenue and Taxation Code informs the assessor that he must determine market values as of noon on the first Monday in March of every assessment year. Here, it appears, is the assessor's answer. He must locate those security prices that apply to a point in time as close as possible to noon on the first Monday in March. With a reasonable range of time around this point allowed for administrative convenience, the timing problem appears to be unequivocally solved by the statutory mandate of Sections 405 and 751 of the Revenue and Taxation Code.

In discussions of the theory of the stock and debt method of valuation, however, it is almost always suggested that the selection of a single set of security prices would yield an answer that would, in all probability, be greatly distorted in either a positive or a negative direction. This distortion exists, it is claimed, because many individuals who engage in stock market transactions do so with an eye to speculative profits and not with an eye to the future income possibilities of the physical property itself. They are, in other words, speculating in the ownership shares and are giving little or no consideration to the long-term income possibilities of the property. In these theoretical discussions the difficulty suggests its own solution, namely, that it is necessary for the assessor to average out the security prices (or the security values) over some period of time considered to be sufficient to smooth out the most violent price fluctuations and thus eliminate, or at least mitigate, the speculative influences. In the first place, of course, the averaging device is suggested somewhat hopefully as a device that *will* have these effects. The effects may, indeed, be in this direction, but the violence of short-run price fluctuations need not be perfectly correlated with the sort of speculation that the theory presumes to eliminate. More important than this, however, is the basic problem of whether these speculative influences *should* be removed. This problem is by no means as easily answered as has often been assumed. It requires a somewhat more complete statement of the stock and debt method and its relationship to the over-all purposes of the valuation process than has yet been supplied in this chapter.

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[5] In some balance sheets the reserves for depreciation of operating plant are shown on the assets side as negative items, so that the total plant and equipment is shown net of the depreciation reserve. Since the assessor is not accepting the book figures for plant and equipment when he is pursuing the stock and debt method, this technique makes no difference to the valuation process.

[6] See, for example, the *Uniform System of Accounts for Class A and Class B Telephone Companies*, prescribed by the Public Utilities Commission of the State of California, p. 38.

In the discussions of the earnings evidence of value it was pointed out that the absence of market sales for the unit under examination made it necessary to hypothesize about the character of business motivations. It was necessary to construct a theory based upon the assumption that businessmen do, in considering the purchase of ''income property,'' go through the process of carefully calculating the expected future income of the enterprise, discounting it at some carefully determined rate of interest, for a time period based upon their careful calculations of the life expectancy of the enterprise. This theory is by no means unusual. However, it is still a theory. A statement of the theory requires a rather elaborate chain of reasoning, and it is not unusual for the theorist to forget about the tenuous assumptions that represent the first link in the chain, and the reasons for making the assumptions in the first place. Surely the argument that market value must always arise through the same sort of careful calculations merely because the absence of data in one valuation case makes it necessary to *assume* that this is the *most probable* behavior pattern must be held to involve a *non sequitur* of the first order. As long as the buyer of the residential property, for example, is not involved in some collusive arrangement with the seller, and as long as the seller is not compelled to sell by some legislative act or by the pressures of economic penury, we do not choose to inquire into the motives of buyer and seller. As pointed out at some length in Chapter IV, it would be possible to define market value in such a way that it was restricted to a value that resulted from the operations of some rational process on the part of both buyer and seller. But it would then be necessary to spell out precisely what was meant by a ''rational process.'' If an individual purchases a home next door to his own to provide living quarters for his mother-in-law he may be claimed by some to be highly irrational in his behavior and by others to have exercised a high order of reasoning. If he is buying a home because he thinks that the price of housing is going to rise in the future he is clearly a speculator, but the label of ''irrational'' would probably only be applied by someone who thinks that the price of housing is going to fall (perhaps this person is the seller of the house). But such a difference of opinion is a natural element of a market situation and can be claimed to involve irrationality on the part of one of the participants only by someone claiming perfect knowledge of the future. Even an assessor does not appear to be as fully equipped as necessary to support such a claim. Under such a definition, if the assessor is determined to weed out all speculative elements in actual market prices, he is committed to ruling out almost all such sales data, for in a world of uncertainty virtually *everyone* is a speculator. If he is determined to distinguish between speculations based upon thought (that is, ''rational'' speculation in the broadest sense) and speculations based upon impulse (that is, ''irrational'' speculation in the broadest sense) he must be prepared to analyze each transaction in all of its essential elements, viz., the thought processes of the buyers and sellers, and pass judgment upon these elements according to his own set of definitions.

If, on the other hand, market value can be defined in such a way as to clear away all of the impenetrable underbrush of ''rationality-versus-irrationality'' then a sale price can be accepted as an actual fact which requires no interpretation beyond that required by the Revenue and Taxation Code. In accepting this kind of definition one therefore admits an indifference as to the reasons for this price. If the buyer was willing to pay the price as a result of his carefully devised speculations, with the present intention of selling it again in six months; or if he was willing to pay this price because he wants to live in the house in his old age, the price he pays is equally admissible, not merely as an *evidence* of market value, but as market value itself. Needless to say, this latter concept of market value has the additional advantage of being infinitely more workable in view of the fact that assessors are faced with the necessity of annual mass appraisals.

If this ''objective'' definition of market value is accepted, then the stock and debt method of valuation is *basically* different from the capitalized income method. It is presumably not necessary to justify the stock and debt approach with an analysis of individual motivations, because a set of facts exists that indicates how individuals *do* behave. These facts may indicate that the buyers of the company's stock have gone through the calculations involved in capitalizing their expectations of the company's profits or they may not. One may then ask is it necessary to average out the market prices of securities over a 1-year, a 5-year, or a 10-year period? It is the prices that exist at noon on the first Monday in March that define market value within the framework of existing statutory provisions. To be sure, prices may have been much lower the day before and they may be much lower the day after and this situation may be thought to be unfair for the person who happens to own the property on the assessment day. However, the solution to this inequity is a legislative solution (or a constitutional solution), not an administrative solution. If it is inequitable for one type of property it is inequitable for another and the problem should be solved by changing the laws and not by the manipulation of assessment practices. If the assessor seeks to apply standards of what is fair and what is unfair to the taxpayer he is usurping a legislative prerogative and the door is opened for discrimination and malpractice of every sort. Under the capitalized income method it may be perfectly appropriate for the assessor to determine average net income over a five-year period (for example), if this is based upon his analysis of his assumptions as to how a buyer of the property would behave. But this averaging process is calculated to assist in the *determination* of market value. It is not an averaging of market values themselves.

The foregoing discussion has ignored one very serious difficulty inherent in the stock and debt method of valuation. It may be admitted that the price paid in the stock market for a share of stock at noon of the first Monday in March is the market value of that *share of stock*. But one may question whether it is fair to assume that the market value of the *enterprise* can be determined by multiplying the market value of the share of stock by the total number of shares currently outstanding at that particular point of time. If the answer to this question is unequivocally affirmative, then the stock and debt method would no longer provide a mere evidence of value. It would provide a figure that could be supported as the market value itself. There would be no question about the relative merits of the stock and debt method as opposed to the capitalized income method, for if the latter did not yield the same answer as the former, then there would be undeniable proof of the inadequacy of the capitalized income method—proof either that the calculations of the assessor were incorrect or that buyers of the property did not behave in the way the assessor assumed them to behave when he developed his valuation theory. However, such claims may not be made, because the computation of the enterprise value from the value of a share of the stock of the enterprise may in a sense be said to violate the unit rule of assessment.

However, a distinction must be made between the question of whether or not the speculative element in stock market prices should be removed by the averaging device and the question of whether the value of an enterprise can be determined from the value of a share of stock. This distinction may be made clearer by the presentation of a hypothetical example. Assume that a corporation has a capital structure that consists entirely of 100,000 shares of common stock and that it has no other liabilities except its reserve accounts and its surplus accounts. Assume further that although the stock may be bought and sold in the market it is marketable only as a single block of 100,000 shares. It is impossible, in other words, to buy the common stock of this corporation without buying the entire enterprise. In the market environment of this illustration it would still be possible for a buyer to "speculate" in the stock market. The buyer may feel that he could sell this corporation in six months for a much higher figure than he could buy it for now. His present purchase may or may not be based upon his own calculation of the income potential of the enterprise itself. Indeed, after a thorough examination of the property he may come to the conclusion that he would be foolish to buy the enterprise as a long-term investment. But he buys in the hope that the pace of the market is "bullish." He buys in the hope of receiving a capital gain. If the assessor makes use of the capitalized income method and constructs his evidence with care and precision he would, presumably, come to the same conclusion and would place a relatively low value on the property. But the actual sale of the property, assuming that it takes place just before the assessment date, would invalidate the assessor's findings. The sale would not necessarily invalidate the assessor's calculations, but it would invalidate the assumptions of market motivations upon which the calculations were based. Once again, of course, if market value were defined to rule out the actual sale price and to permit only the price that would be justified by the long-run investment opportunities, the assessor would be obliged to apply the same standards to every other type of property (income and nonincome), and would be engaged in the morass of deciding what was a valid "market value" and what an invalid "market value." If he were to adopt the easy solution of averaging a series of actual prices over a period of a year or longer, he could never be sure that he had averaged out only the "invalid" fluctuations. He would, in other words, be trying to administer a basically unworkable definition of market value.

The alternative definition would be one which did not question the motives of the purchaser but which permitted the assessor merely to record the fact of the purchase price. Any averaging of these purchase prices over the years would not only be unnecessary, it would be unquestionably inaccurate. The assessor would not, in the hypothetical illustration presented above, be troubled by the relationship between the sale of the capital stock and the sale of the enterprise as a whole, for the former would be fully representative of the latter. In order to facilitate the discussion of the speculative element, the illustration has abstracted from the question of the relationship between a share of stock and the enterprise.

The above example was presented to show that the device of averaging which is commonly claimed to be an essential part of the stock and debt computation is designed to eliminate the speculative elements which are clearly part of the stock market prices. It was also presented to show that this rationalization represents a fundamental misconception of the definition of market value. In all honesty, however, it must be admitted that this position is in the nature of a minority opinion. The averaging of stock market prices over the period of a year or five years has become, and no doubt will remain, an established part of the stock and debt computations. This, however, is accepted only on grounds of convention; it is not acceptable on grounds of logic.

The most important defect in the stock and debt method of enterprise valuation, mentioned briefly above relates to the application of the "unit rule of valuation." It was pointed out earlier that the market value of the *enterprise* may not automatically be inferred from the market value of a *single share of stock* or even from the market value of any small block of shares. It was also suggested that, in this respect, the stock and debt method of valuation seems to violate the unit rule of valuation. It might therefore be imagined that the condemnation of the stock and debt approach would have to be as strong as that applied to the so-called "summation" approach discussed in Chapter IV, by which the "values" of the individual items of property were added up to obtain a total "value" for the enterprise as a whole. It must be clear, however, that the two cases are quite different. In the stock and debt method the individual shares of stock may not be taken to represent specific items of property. Instead they must be taken to be abstract units of ownership in *all* of the property of the enterprise. Thus, in the case of the stock and debt approach, there is no question of a violation of the principle of functional relationship, and this violation was the essence of the criticism of the "summation" approach. Although it may still be claimed that the stock and debt method violates the unit rule, it is clear that the violation is of a different character than any discussed so far in this report.

Before it is possible to understand the nature of this defect it is necessary to recognize the nature of the thing that is purchased in a stock market transaction. When an individual buys a single share of the common stock in a corporate enterprise he does, to be sure, buy an ownership interest in the physical property (and in all other property) of that corporation. But he does not typically buy into an opportunity to control that enterprise and to guide its destinies. He buys an opportunity to receive dividends and perhaps to participate in a capital gain at some future time. But, as a minority stockholder in a corporation that has many stockholders, he could hardly be said to be "in the driver's seat." As a result, the price he pays for his share of stock obviously does not represent his opinion of what the value of this enterprise would be if he were guiding its operations. But it was also pointed out above that, in determining the market value of the enterprise as such, one must think of a single purchaser of the entire enterprise. Such an individual would, by definition, be in the position of control, and the price which he would be willing to pay *would* represent the purchase of an opportunity to control as well as the opportunities to receive dividends and to extract a possible capital gain. This, then, is the dilemma of the stock and debt approach. The data are factual enough, but they have a limited reference. Since market sales typically relate to only a small percentage of the total stock issue they omit almost all reference to the control element, yet if one computes the market value of the entire enterprise the element of control is a necessary consideration.

This single difficulty has often been claimed to be enough to destroy the effectiveness of the stock and debt approach to market value. If the data which flow from the market place are in this way unsatisfactory, the approach loses its one claim to reputability, i.e., its factual character and the consequent lack of necessity for subjective interpretations by the assessor.

The dilemma is not, however, quite as crushing as it might at first appear, although there is still a margin of valid criticism that must be recognized. Part of the solution is to be found in the relationship of the *debts* of the enterprise to the market value of the enterprise. It may be that many experts have been willing to put forth their severe criticisms of the stock and debt method precisely because they have been thinking entirely in terms of the "stock" component of the title. To repeat, the criticism noted above is in terms of the fact that the market data relating to the sale of small amounts of capital stock do not carry any reference to the "control" element of value even though they refer to purchases of ownership. However, one must also consider the market values of the long-term debt of the corporation, viz., corporate bonds and debentures. The purchasers of these instruments do not even purchase ownership, let alone control. They merely purchase claims against the income and assets of the corporation. Nevertheless these claims are essential to a valuation of the enterprise and these debt instruments must be included in market value computations. If it is impossible to explain an analytical interest in the market prices of *debts* from the point of view of the way they measure the ownership or the control elements, perhaps no attempt should be made to explain an analytical interest in the market prices of the *capital stock* from the point of view of the way *they* measure the ownership or control elements. If this is not the source of the relevance of stock prices, perhaps it follows that the absence of a control reference in the capital stock sales is less damaging than heretofore imagined.

It was pointed out above that to construct the market value of the enterprise by the stock and debt approach one must think of a *single* hypothetical buyer.[7] Although this buyer would automatically obtain control of the enterprise, within the confines of the legal and institutional matrix, it is not the control *per se* that must be of interest in market value analysis. The corporate ownership may be so widely dispersed that very effective control could be obtained by the purchase of only a small fraction of the total number of shares outstanding, but it certainly would be obtained by the purchase of 51 percent of the voting stock outstanding. Nevertheless, it is insisted that the hypothetical buyer purchase *all* of the capital stock and *all* of the debts, including (in theory) those for which no organized market exists. This insistence indicates an interest in more than the control and more than the ownership of a corporate equity. It indicates an interest in a "free and clear" ownership of *all* of the company's assets and in the process by which such ownership is obtained. *Thus, the actual market prices of the capital stock; the actual market prices of some of the outstanding debt; and the assumed market prices of the rest of the outstanding debt are not relevant because they indicate what the many present holders of these instruments have, but because they indicate what the single hypothetical buyer of the enterprise must obtain before he can own the property "free and clear."*

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[7] This point is generally conceded in the theoretical analysis of the capitalized income approach, but it seems to be forgotten in the stock and debt approach. Yet it is clearly essential if we are to determine a single market price for the enterprise as a whole. It is also the clear implication of the "just-debt-from-a-solvent-debtor" definition of Section 110 of the Revenue and Taxation Code. The individual may, of course, be a natural person or a corporation.

It appears, then, that the prices which appear in the market place are not to be criticised for what they do or do not contain. These are the prices which the buyer of the entire enterprise would have to pay in the process of making his purchase. To make these prices meaningful for valuation purposes one merely assumes that the shares of stock and the debt instruments that were traded were purchased by a single buyer rather than by the many buyers who no doubt actually made the purchases. These market prices are deficient because they do *not* indicate what the buyer would have to pay for the *rest* of his purchases. If a market situation could even be found in which all of the capital stock and all of the debt were traded in the market in one day, one would merely have to assume that the purchases were not made by 1,000 actual buyers but by a single buyer with 1,000 agents (perhaps conducting their operations surreptitiously for an unknown client). In the normal situation, however, only small quantities of the total are traded at any one time, and it is necessary to make more or less appropriate inferences about the remainder. This is the gap in the practical application of the stock and debt method to a problem of corporate valuation, and no amount of theorizing will fill this gap in a completely satisfactory way. In effect, the assessor tries to fill the gap by multiplying the market prices by the total amount of stock and debt outstanding, thereby implicitly assuming that the rest of the shares could be purchased at the same prices as those which were actually marketed. But the fact that the present holders of these shares were not willing to sell at the going price indicates that they place a higher value on these shares. On the other hand, the fact that no one has offered to buy any more at the going price may indicate that this price is too high for the remaining shares. On balance, it may be that the assessor's inclination to multiply is as agreeable a solution as can be expected.

The stock and debt method of valuation is thus strictly factual only up to a point. Beyond that point the processes of assumption, estimation, and sheer guesswork predominate. Furthermore, it is always the assigned task of the assessor to decide when the market data exist in insufficient quantity, as compared with the total relevant liabilities of the corporation, to provide meaningful results. The extreme of this case, of course, appears when no market data whatever are available. Such is the case with mutual companies and with many subsidiary corporations whose stock is closely held by the parent organization. In these cases the stock and debt method is so deficient as to be completely useless and other valuation techniques must be substituted.

The stock and debt method of valuation yields what has been called an "enterprise" value, viz., the market value of the enterprise as a going concern. If it is desired to produce a value figure that relates only to the operative physical property or, more sensibly, to taxable property, certain adjustments must be made. In all cases, however, these adjustments have a highly artificial appearance and are not subject to the same logical tests as the stock and debt evidence itself. The following discussion is not concerned with adjustments necessary to obtain a figure for operative physical property but merely with adjustments necessary to obtain a figure for taxable property, or, more correctly, to obtain a figure that represents property which the California State Board of Equalization is required to assess.

As with the valuation itself, the first step in the adjustment process is to pick out those items listed in the balance sheet which are to be removed from the market value figure. The next step is to place some appropriate "value" figure upon these items and subtract them from the market value figure. Obviously all of the items for present consideration are located on the asset side of the balance sheet and the assessor will want to select the specific items in accordance with the particular accounting practices of the firm under examination. In general, however, the following items must be removed:[8] (a) the securities of other companies held as investments by the company being valued; (b) all of the current and accrued assets except materials and supplies and cash; and (c) certain other "deferred charges." Each of these is discussed briefly below.

The securities of other companies are exempt from property taxation by the provisions of Section 212 of the Revenue and Taxation Code. It is clear that they must be removed from the computed value of the enterprise, and, where possible, by deducting them at their market values. Once again the assessor must go to the market place, obtain the market price of each type of security, and multiply by the number of shares held by the assessee. In this case, however, it is particularly probable that the market data will be lacking in sufficient quantity to make the market value figure meaningful. In many cases these securities of other companies will represent a subsidiary relationship, and no market price of the normal type will exist. In these cases the assessor has little choice but to subtract these securities at the figure shown for them on the books of the assessee.

For the most part, the current and accrued assets of the assessee come under the heading of "solvent credits" as defined in Sections 111, 112, and 113 of the Revenue and Taxation Code, and as such are subject to the special provisions of Section 2153 of the Revenue and Taxation Code. Materials and supplies are obviously not in this category, however, and must not be removed along with the other items. Similarly, the amount of cash held by the company is fully taxable and must not be removed, or, if removed (as in California) must be added back later. There is little hope of placing market values on the current and accrued assets that are to be subtracted from the market value figure for the enterprise, just as there was little hope of placing market value figures on the current and accrued liabilities that are part of the enterprise value. For all practical purposes, the assessor is committed to "valuing" these items at the figures carried for them on the balance sheet.

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[8] Three types of property are omitted from this list. These are (a) licensed motor vehicles, (b) the property of the company that is located outside the State of California, and (c) property located within the exterior boundaries of California but on United States Government military reservations, etc. Each of these types of property is exempt from property taxation in California, at least insofar as assessment is concerned. In addition, each is a type of operative physical property, and for this reason is sometimes (as in California) subject to a special type of adjustment for its removal. This adjustment is discussed in Chapter VII.

The "other deferred charges" item in the balance sheet is similar in character to the liability item "other deferred credits" which was discussed earlier. Some of the entries in this account represent physical property, while other entries represent intangibles of various sorts.[9] Each entry must be scrutinized to determine whether or not it should be deducted. Once again, there is no ready alternative to taking the figures at their book amounts.

When these deductions have been made, the value figure that remains represents the market value of all of the physical property of the enterprise and it includes operative and nonoperative property, as well as materials and supplies, and cash.

Valuation theorists often feel obliged to construct detailed comparisons of the advantages and disadvantages of the stock and debt method as opposed to the capitalized income method of valuation. Much of this comparison has been implicit in the discussions presented in Chapters V and VI and need not be further pursued at this point. In conclusion it may simply be said that when the stock and debt evidence is at its best, the assessor has every reason to prefer it over the capitalized income evidence. When it is at its worst, he has every reason to ignore it completely.

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[9] For a more precise description of the character and content of this account see the *Uniform System of Accounts for Class A and Class B Telephone Companies*, prescribed by the Public Utilities Commission of the State of California, p. 31.

CHAPTER VII

THE ROLE OF COSTS IN PUBLIC UTILITY VALUATION

Of all the magnitudes that have at various times been suggested as possible indices or evidences of market value, those that have been subject to the most severe and recurrent castigation in the professional literature are those that have to do with costs. It has been suggested by their critics that costs are not only bad *measures* of market value, but that in only a very restricted set of circumstances may they even be taken to be acceptable *evidences* of market value. Yet there is something peculiarly durable about the various cost evidences that makes it especially difficult to kill them off as the favorite workhorses of many appraisers. Indeed, it has become apparent in this investigation that in the eyes of many appraisers and even their critics "cost *means* value and value *means* cost." The controversy which has been stimulated by these two diametrically opposed points of view has done much to obscure the very real services which the concepts can render in the assessment process. It is the purpose of the present chapter to describe some of these cost concepts, to show their basic relationship to the concept of market value, and to discuss the roles which they may legitimately play in the determination of market values and in the subsequent derivation of assessed values.

The concept of market value which has been accepted in this report is one which favors the automatic acceptance by the assessor of any price which appears in the market place just so long as it can be shown that the sale which generated that price was in no way "forced." It has repeatedly been stressed that the California assessor is committed by law and by logic to agree that such sales data are to be interpreted as measures of market value and not as mere evidences of market value. If sales data exist for particular items of property they are to be taken as facts sufficient unto themselves. If sales data do not exist, it is the duty of the assessor to construct as good an imitation as possible.

In extending these ideas to the cost concepts, it is necessary to develop the argument from some very simple and obvious economic principles. In the first place, it must be recognized that every sale transaction involves two parties, a buyer and a seller. If the transaction is viewed through the eyes of the seller, the market price is clearly a money receipt. If it is viewed through the eyes of the buyer, the market price is clearly a cost. Since the market price of the item of property that is traded has already been claimed to be the market value of that item of property, it must also be true that the market value of the item of property is the cost of the property to the buyer. The identity of cost and market value is thus a simple truism. Cost is merely the buyer's way of thinking about the price he paid for some item of property in the market place.

Strictly speaking, of course, the identity of cost and market value can be claimed only if both concepts relate to the same point in time, that is, market value *is* cost only at the moment of time the cost is incurred. The cost of the article represents the amount the property *could* sell for at that moment of time because it represents what the property *did* sell for at that moment of time. As such, however, the identity of cost and market value is not too useful to the assessor, for he is required by the Revenue and Taxation Code to determine the market values of all assessable property as of noon on the first Monday in March of every year. The market place is not so accommodating as to provide these necessary facts in sufficient quantity for the assessor's purposes. However, although any cost incurred before that moment of time may not be said to *be* market value, it may, under certain circumstances, be said to *point to* market value. It is the character of this relationship that should be explored.

First, assume that the period of time that is involved between the actual purchase of the article of property being valued and the date of its valuation for tax purposes is one year. Then, assume that the item of property is some common article of personal property that can be used directly, that is, without further fabrication or "installation." It might, for example, be the family car.[1] The actual cost of this automobile to the present owner as of one year ago we may call the "Original Cost New" of the item of property. The question to be put to the appraiser is then, "what could the present owner of this automobile sell it for in the market on the assessment day?"

If the appraiser is interested in applying the cost method of valuation he will, no doubt, be impressed by two developments that have taken place in the period of time from the date of original purchase to the date of valuation. In the first place, the appraiser will observe that something has happened to the market for this kind of automobile, so that if someone were to attempt to buy a *new* car of exactly the same model with exactly the same equipment and painted in exactly the same way, he would have to pay either more or less for it now than if he had bought it a year ago. In the second place, the appraiser will observe that the car that actually *was* purchased a year ago is a different car today than when it was purchased, a difference which can be attributed to the fact that the car has depreciated through weathering and through use. In the process of valuing this used automobile, each of these observations must be clarified and the effect of each on the possible sale price of the used automobile quantified in dollar terms. To be sure, there are probably much simpler valuation techniques available for this type of property. There is an active market for used cars and it would probably be possible for the appraiser to find actual sales of comparable cars.

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[1] It is recognized, of course, that a licensed motor vehicle is not subject to the same sort of assessment for property tax purposes in California as other items of personal property. This has the advantage, however, of preserving the purely hypothetical character of the illustration.

But this would not be a cost method of appraisal and, for purposes of the present illustration, must be set aside. It is not the purpose of this illustration to provide a course of instruction on automobile valuation, but to construct the concept of the cost approach to market value from its basic elements.

It is thus possible to think of the estimated market value of this used automobile as consisting of three elements, one of which describes the original cost to the present owner and the other two of which describe the changes that have taken place since the automobile was purchased. From the point of view of the appraiser, the first of these elements requires mere observation (and verification), while the other two elements require calculation. It is the construction and use of these last two elements that constitute the heart of the cost approach to valuation. For this reason it would seem worth while to scrutinize them a bit more closely at this point.

CHANGES IN MARKET PRICE

By taking account of the price changes for new cars of exactly the same type as that being valued, the appraiser could determine a figure which he might call the ''Present Cost New'' of this property. This ''Present Cost New'' could be different from the ''Original Cost New'' for a variety of reasons. Perhaps a new model has since come onto the market and has made the older model obsolete. Perhaps the automobile manufacturer has conducted a strenuous advertising campaign and has been successful in increasing the demand for this type of car. Perhaps the demand for *all* automobiles, this one included, has increased or decreased. But whatever the reason for the change in the price of a new automobile of this type over the period of the year, the concept of ''Present Cost New'' as it relates to the car being valued is clear enough. It is simply the price that this car *would* sell for in the *present* market if it were offered for sale *new*.

To collect the data required for these calculations the appraiser would obviously have to examine the present sales of new automobiles of the type being valued and use these data to ''factor up'' the ''Original Cost New'' to obtain ''Present Cost New.'' He might, of course, make use of an index number for this type of property prepared by someone else and thus give the impression of great accuracy and precision, but the index number itself could only be constructed by an observation of such comparative sales.

A statement of the character of the basic data is almost a statement of the first difficulties which this method may contain. If the period of time between the original purchase and the date of valuation is very long, there is a possibility that the necessary data will simply not exist, so that it will be impossible to discover a ''Present Cost New'' for that item of property. It is, for example, rather difficult to discover very many sales of new, that is, unused, 1920 automobiles in 1952. If this is the case, this particular cost approach must clearly be abandoned, for guesswork at this basic level can only involve the appraiser in the grossest sort of errors. The likelihood of this difficulty arising will depend on many things such as the type of product being valued, the rapidity with which innovations are introduced, and the like. In the present hypothetical illustration, since the time period involved is only one year, and since in this industry it is often possible to locate the sales of unused automobiles for a period of time this short, the difficulty might not arise. It is nevertheless an important difficulty to recognize and one that is a basic component of the cost approach to market valuation.

DEPRECIATION

The next step in the valuation of the automobile involves the depreciation element. In the cost approach, as in the capitalized income approach, the computation of this depreciation element is likely to present severe problems for the appraiser. The usual method of accounting for depreciation involves the estimation of the total expected life of the automobiles of the type subject to the present valuation, and the deduction of the one year that the automobile has already ''lived.'' This calculation yields a figure that is sometimes called ''the expected future life'' of the automobile. This is obviously not enough, however, for it may be that the car tends to depreciate very rapidly in the early years and more slowly in the later years of its life. Or the pattern of depreciation may be the reverse, with a slow depreciation at first and a rapid depreciation later on. Or the annual rate of depreciation may be described by a straight line, with a constant percentage depreciation of the automobile every year of its life. When these calculations have been made, the appraiser would have a figure which would indicate the present condition of the property. This is usually decribed as the ''condition percent'' of the property and is expressed as some percentage of its condition when it was new. This condition percent could then be applied to the ''Present Cost New'' (described in the last paragraph) to give a figure which might be called ''Present Cost New Less Depreciation.''

It should be noticed that the depreciation element taken account of in this way would represent physical depreciation only, for the computation is in terms of the expected service life of the property. Clearly, it should, if the governing concept is market value, represent the attitude of a potential buyer to the physical condition of the property, and there is no assurance that this hypothetical individual will consider only the expected future life of the property and the present condition of the property relative to that expected future life. If the property is old enough to be an antique, for example, it is probable that depreciation in and of itself will be desirable, so that the appraiser would have to consider a sort of ''negative depreciation.'' This difficulty is perhaps not too important in the case of the used automobile of our illustration, although its importance in the case of furniture will be immediately obvious. Furthermore, the difficulty exists even if we do not choose the extreme example of negative depreciation, for it is still possible that the buyer thinks quite differently about the depreciation element than does the engineer. It is generally conceded that this is a difficulty that the appraiser cannot remove if he is restricted to the cost approach to valuation. Once again, of course, it would be possible for the appraiser to make use of a comparative sales technique to discover the attitudes of the market place for automobile depreciation by looking at the prices paid for similar automobiles that had depreciated to the same extent. But this begs the present question, for if the appraiser is going to use this technique to fill in the gaps in his cost data, he might just as well reject the cost approach in the first place.

Two difficulties, then, have been noted in this hypothetical case. The first relates to the possibility that an identical product to the one being valued is not now being sold in a *new* condition in the market place; the second relates to the possibility that the market place and the engineer do not agree in their interpretations of the effects of depreciation. The longer the period of time between the original sale and the date of valuation, the more severe each of these difficulties is likely to become. In this simple illustration these difficulties seem obvious enough, but it is surprising how commonly they are buried in the complexities of more sophisticated discussions. If, however, it may be assumed that these difficulties do not exist (or that, in any given valuation case, they are unimportant), a figure carefully computed as "Present Cost New Less Depreciation" would have to be declared to be a good evidence of market value. Clearly, it would not *be* market value for this can only be said to exist when the very automobile being valued is actually sold in the market place. But one could have considerable confidence in the results, nevertheless.

The case just described seems to be the simplest one that could be constructed. It is hedged with assumptions which remove as many difficulties as possible. In such a case we see that it is possible to come close to a market value figure with a cost approach, if the term "cost" means the original amount paid by the present owner of the property. But even this simple case contains the two difficulties mentioned briefly above. These difficulties are statistical in character, the one representing the absence of data and the other representing the difficulty of making the data relate to the market situation. In addition, each of these also presents a *timing* difficulty, in the sense that each exists because of the passage of time between the original sale and the date of the valuation and becomes more severe as this time is extended.

This hypothetical illustration, however, abstracts from the greatest difficulty of all in the cost approach to valuation. The difficulty is not inherently a timing difficulty, but it may certainly be magnified by the passage of time. It arises when we remove the second assumption to the above illustration. Here it was assumed that the article that was being valued was an item of personal property that could be used without further fabrication or installation. But the great bulk of property subject to assessment for property tax purposes does not permit us to claim that this assumption is a realistic one for the general case. The assessor must appraise property in the form in which it exists on noon of the first Monday in March. In the automobile illustration this instruction was represented by the fact that it was necessary to appraise the depreciated automobile and not the original automobile. In the case of a railroad bridge that is part of the main line of the road, for example, the instruction is represented by the fact that it is necessary to appraise the depreciated *and installed* property. In the automobile case it was fairly easy to account for the depreciation element, although even this was not completely free of difficulty. In the case of the railroad bridge it is much more difficult to account for the fact of installation, at least by the cost approach to valuation.

If we choose to think of the concept of "Original Cost New" as the starting point in the valuation of this hypothetical railroad bridge it is clear that we now have three additional elements to consider instead of the two previously discussed. The consideration of the additional elements injects several new pieces of terminology into the discussion and it might be appropriate to set these down before considering the relationship of the resulting cost concepts to the concept of market value. We may think of the cost of the railroad bridge, purchased by the railroad from the "manufacturer," as the "Original Cost New" of the property. So far the terminology is the same as for the automobile. To this "Original Cost New" might be added the actual costs of installation, including the costs of all labor, materials, imputed interest charges during construction, and other charges legitimately associated with the act of installation. These costs might be labeled the "Original Costs of Installation." The sum of the "Original Cost New" and the "Original Costs of Installation" might be labeled the "Historical Cost New" of this item of property. Now assume that once the property is installed no further changes are made to it, so that no new costs are involved. On the valuation date the appraiser will have to determine the "Present Cost New" of the bridge by methods described above, and, in addition, the "Present Costs of Installation." The methods of determining the latter magnitude are, of course, similar to those used to determine the former. They would consist of locating present-day labor costs, present-day material costs, and an imputed interest charge to the period of construction that is consistent with present-day money markets. The sum of the "Present Cost New" of the property itself and the "Present Costs of Installation" might be called the *"Reproduction Cost New"* of the railroad bridge in question. As in the earlier illustration, it would be possible to estimate the depreciation element that is related to the physical property and apply this to the "Reproduction Cost New" figure. The result might then be called the *"Reproduction Cost New Less Depreciation"* of the property. It is this figure that is usually related to the market value of the property.[2]

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[2] The several new terms introduced here and included in italics above are terms that are commonly used in discussions of the cost approach to market value. They are defined more carefully in later chapters of this report. It is sometimes desired, for particular purposes, to construct a figure for *"Historical Cost New Less Depreciation"* as well. This can be done merely by applying the depreciation element to the figure for "Historical Cost New." The other terms used in this discussion were designed especially for the illustration and conform to no general practice.

One very significant difficulty arises with respect to the addition of the installation costs to the "Original Cost New" of the physical property. The act of installation presumably consists of connecting the railroad bridge to the tracks on either side of the bridge. The question arises, then, as to why the costs of installation should be associated with the bridge any more than they should be associated with the track on either side of it. It is recognized that railroads and other public utility systems with comparable problems sometimes do, under the accounting prescriptions of the various regulatory agencies, allocate such costs to one of the other type of property, but these practices conform to standards of convenience only and not to standards of logic. There are no logical grounds for allocating these installation costs to specific types of property, since these costs are merely part of the total cost of constructing an entire utility system. In the railroad case, part of the costs of installing the bridge might very sensibly be allocated to the main line itself, for this main line might be virtually useless without the crucial section on the bridge. But the question of *how much* to allocate to one and how much to the other is basically unanswerable. All that need be said at this point, however, is that if the figure for the "Reproduction Cost New Less Depreciation" of the bridge were computed to include all these installment costs, the computed figure could not be said to have any real meaning as far as the bridge itself is concerned. But the reproduction cost new less depreciation of the bridge *without* the installation costs is equally meaningless, for it is not a bridge floating in mid-air that the appraiser is required to value. Part of the "value" of the bridge consists of the fact of its actual installation, and this feature cannot be neglected without doing violence to the concept of market value itself. This is the dilemma that faces the assessor when he tries to value this item of property by the cost approach.

Of course, to state this point is merely to restate the principle of functional association which was developed at some length in Chapter IV. It was on the basis of this principle that the idea was expressed that, if the parts of an operating system are functionally connected as in the above illustration, there is no such thing as a "market value" of any one of the parts apart from the scrap value associated with that part. The dilemma just mentioned, then, is merely part of the larger dilemma which comes from the fact that the Revenue and Taxation Code requires a "value" figure to be placed against such items of property and the fact that no such market value exists. It is not only impossible to determine the market value of the installed railroad bridge by cost methods; *it is impossible to determine it by any method*. The same conclusion can obviously be reached by examining the concept of market value through the eyes of possible traders in the market place. Once the bridge has been installed it is not marketable as such, for it is impossible to buy the bridge without buying the track on either side of it, unless, once again, the bridge is sold for scrap. Even if we could conceive of a market transaction for this particular item of property, we could not conceive of a price which might be paid, for the seller would be unwilling to part with a piece of property if this would destroy the earning ability of the entire road, unless he were able to command the price of the entire system. From the point of view of the buyer, the bridge is of such a unique character, designed to fit the particular circumstances of its present installation, that it would be useless for anything but junk if it were separated from the system. The present discussion merely reinforces the earlier statement of the principle of functional relationship by pointing out that the concept of the cost of reproduction is of no assistance in extricating the assessor from the dilemma in which he is involved if he attempts to place defensible "market values" on such specific items of property.

The idea of cost may thus be a useful one in the determination of the market value of those items of property which are capable of rendering services by themselves and without further installation. Depending upon the length of time between the occurrence of these costs and the valuation date, cost may be a good or a bad evidence of market value; but at least it can be said to be an evidence of market value. Whenever an installation *is* required to enable an item of property to perform the functions for which it was intended (and whenever the item of property being valued has been so installed), one must conclude that cost is not an evidence of market value; in fact, market value itself cannot be determined. The need for installation merely highlights the functional relationship of this item with other items of property in the entire utility system and justifies nothing but the "unit" approach to market value.

A much more important and a much more subtle argument than the foregoing is often advanced in favor of the use of costs as an evidence of value, although the two cases are not always distinguished with care. In the present attempt to justify the use of cost data, it is possible to admit the validity of the criticism of the use of costs to determine the value of an installed item of property. It is even possible to admit that it is meaningless to talk about the market value of such items of property and thus to agree with the need for a unit valuation of the entire operative property of the utility system. It is claimed in this argument that the *sum* of all of the "Reproduction Cost New Less Depreciation" figures would still be an acceptable evidence of this unit value. There need be no question of the "Reproduction Cost New Less Depreciation" of any one item of property measuring the market value of that item of property. Indeed, it is not even necessary to allocate the installation costs to any particular item of property so long as they are included as part of the total "Reproduction Cost New Less Depreciation" figure. Although the criticism of this approach has often consisted of the statement that "the value of the whole is not necessarily equal to the sum of the values of the individual parts," it is clear that this criticism does not quite close the case. For, even if we agree that the statement is true, the question still remains as to whether the sum of the "Reproduction

Cost New Less Depreciation" figures can equal (or indicate) the unit value. In effect, the theory that answers this question in the affirmative holds that the value of any commodity may be considered to be equal to the costs of producing it, or if some period of time has elapsed between the original production and the date of valuation, that the value of the commodity is equal to the costs of reproducing it.

As it is usually stated, this theory is designed to apply to the valuation of any "commodity"—the finished automobile as well as the entire operative property of the public utility system. In the case of the automobile the theory suggests that it is possible to determine the market value of the property by adding up the costs of the carburetor, valves, wheels, upholstery, the labor required to put the parts together and so on. Of course, the theory would also have to agree that it was possible to discover the market value of the automobile by going even further back in the economic process and adding up the costs of the steel, rubber, glass and all the other raw materials which are part of the finished product, including the labor required at all stages of production, the interest charges on capital equipment, and (according to some formulations) the "normal profits" of the entrepreneur.

It is not necessary to phrase the criticism in terms of reconstruction costs to prove the theory invalid. Even if we assume the valuation date to be the precise moment that the automobile is purchased by the new owner, it is obvious that the market price is not likely to be equal to the costs of production.[3] While it is accurate to say that the cost of the automobile to the buyer is the same thing as the market price of the automobile, it is clearly not accurate to say that the sum of the costs of constructing the automobile is equal to the market price. Costs may be identified with market value if they are costs of *acquisition*, but no such identity may be claimed if the costs in question are the costs of *production*. Unless there is reason to suppose that profits to the seller are zero, there is no justification for the claim that construction costs equal the selling price or that they are even good indicators of the selling price. The theory which emphasizes the equality of construction costs and market value is, explicitly or implicity, based upon the theoretical doctrine of competitive price as advanced by the classical economists. This theory was designed to apply to a system of "perfect competition" in which the existence of profits (described by the fact that price was higher than costs) would, in the long run, tend to stimulate the entry of new firms into the industry and thus wipe out profits for every firm in the industry. The tendency would then be for price to fall back to an equality with construction costs.

Even in the theory of perfect competition it is recognized that at any given moment there may be a marked disparity between costs and price. It is merely suggested that this situation is one which would tend to stimulate an adjustment to some long-run equilibrium in which the equality of costs and price would obtain. It is also recognized that other things may happen in the meantime which will tend to produce further adjustments in the same direction or in the opposite direction, so that the situation may never be finally "adjusted." It is not an accomplished *fact* which is described in this theory, but a mere theoretical *tendency*. In the real world, however, even this *tendency* may be questioned. An industry which fulfills all of the formal requirements of the theory of perfect competition probably never has existed and probably never will exist. It is, indeed, rarely *approximated*. Certainly it is not even an approximate description of the automobile industry of our first illustration, and it is clearly inapplicable to public utility enterprises. The effective barriers which business firms of all types have erected to prevent the entry of new enterprises into the industry and thus to preserve a monopoly or a semi-monopoly position are too well known to require delineation at this point. It is apparent, too, that some of these barriers are legally permitted and even legislatively stimulated, as in the case of the patent device and the common practice of granting public utilities the privilege of exclusive franchises. Yet in market structures where the competition is anything less than "perfect," the equality of construction costs and market price is little short of mythical.

The supporters of the cost approach to market value often present one further argument in justification of their position. This argument sometimes goes under the label of the "Theory of Substitution" or the "Theory of Replacement." The theory itself is extremely simple, for it holds merely that no owner of a piece of property may demand a higher price for that property in the market place than it would cost him to replace it. Since, presumably, any other individual would be able to purchase a similar item of property at the same price, it would also follow that no other individual would pay more for the property than the price which he would pay for a substitute. This theory would be true, of course, only if the cost concept were constructed to include more than the concept of "Reproduction Cost New Less Depreciation" presented above. It is necessary, for example, to consider all of those incidental costs associated with the time required to replace the property with an acceptable substitute and all of the other troubles and inconveniences involved in the substitution, either for the present owner or for the potential buyer.[4] With these additional inclusions, the cost concept is often relabeled "Replacement Cost," although terminological practice is by no means consistent in this respect.

At its best this concept of "Reproduction Cost New Less Depreciation" (or "Replacement Cost") is useful only in the sense that it provides a measure of the

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[3] This is the same thing as saying that if depreciation is zero, "Reproduction Cost New Less Depreciation" equals "Reproduction Cost New"; and if there has been no price change in the new commodity, "Reproduction Cost New" equals "Historical Cost New." If "Historical Cost New" is taken to mean the sum of all of the costs of production, there is no necessary equality between "Historical Cost New" and market price.

[4] Examples of this are given in Bonbright, James C., *The Valuation of Property*, McGraw-Hill, New York, 1937, p. 158 as "where a haberdasher has been * * * deprived of his supply of straw hats, irreplaceable until the end of the summer; or as where a building contractor fails to receive a shipment of cement, replaceable only after a delay that will impose upon him a penalty for noncompletion of the building." These examples are cited in conjunction with a discussion of the law of damages, but the nature of the additional considerations clearly applies equally well to the tax valuation case.

maximum market value which could be associated with the property in question at the time of its valuation. It tells us nothing about the precise location of the market value. This point is well stated by Professor Bonbright as follows: ''The principle of substitution merely justifies the inference that * * * property cannot be worth *more* than its replacement cost. It by no means warrants the further inference that the value is as high as this, or even that the value is nearer to replacement cost than it is to zero.[5] Here, then, is the use to which construction costs (or reconstruction costs) may be put in the process of determining a market value of a public utility enterprise. It must be obvious that the usefulness of this kind of cost information is closely circumscribed by both the inherent difficulties and the mechanical difficulties described above.[6]

In California (as in many other states) one other use of cost evidence for public utility valuation is sometimes considered. This, however, does not relate to reconstruction costs but rather to historical costs and technically to ''Historical Cost New Less Depreciation.'' This suggestion comes from the fact that the California Public Utilities Commission makes use of this cost concept as the rate base for those utilities within its jurisdiction. It is usually admitted that the figures for ''Historical Cost New Less Depreciation'' would have no particular significance in the market value determination but for this use in the rate-making process. More specifically, the argument runs that if ''Historical Cost New Less Depreciation'' is the rate base, it is instrumental in determining the earnings of the company in question, and it is a well-known proposition that market value is related to earnings. However, the relationships posited are very tenuous and the argument favoring the use of ''Historical Cost New Less Depreciation'' as a measure of market value is very questionable indeed. There are two reasons for doubt as to the usefulness of this cost concept for property tax purposes. In the first place the character of the rate-making decisions of the Public Utilities Commission is not such as to *guarantee* any level of earnings at least in the short run, and actual net earnings cannot be imputed with confidence from the permitted rates. In addition it is really *expected* future net income which is instrumental in determining market value (if the assumptions which lie behind the capitalized income approach are realistic), and there is certainly no necessary relationship between these expected future returns and the rate base used by the Public Utilities Commission. If a relationship exists, it cannot be quantified with the precision required for these purposes. If the assessor feels obliged to capitalize a realized income figure rather than an expected income figure, there is still no reason to assume that the ''value'' figure so computed will be equal to the rate base. In cases of discrepancy it is clearly desirable to make use of the actual net income figures as capitalized and not the ''Historical Cost New Less Depreciation'' figures.

But the second objection is ever more important. Although it is impossible to probe deeply into the distinctions at this point, it is clear that the rate base is subject to quite different legal interpretations than the market value base for purposes of property taxation. It may be possible to justify the use of historical costs for rate-making purposes (although there is some doubt about this), but the same justification cannot be said to apply to the market value computations for tax purposes. Even in tracing the relationships through earnings, it is clear that the permitted earnings are a function of both the rate base and the permitted rate of return. It is quite possible for the rate base to be small relative to market value, with the ''slack'' taken up in the form of a relatively high rate of return. Thus, although the attempt to rationalize the use of historical costs in property tax valuations is based upon a quite different theory than the attempt to rationalize the use of reconstruction costs, the former is no more acceptable than the latter in the final analysis.

Information relating to the costs of construction thus appears to play a strictly supporting role in the determination of market value. The magnitude known as ''Reproduction Cost New Less Depreciation,'' appropriately adjusted, may be used to indicate maximum value but may not be taken as an evidence of the actual market value. This is not to say, however, that the assessor should refuse on these grounds to compute any of these cost magnitudes. As will be shown briefly in Chapter VIII and in somewhat more detail in subsequent chapters, cost data may prove to be very useful in the difficult task of allocating the unit value to the various taxing jurisdictions through which the utility property passes even though they must be looked upon with suspicion in the actual valuation process.

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[5] *Ibid.*, p. 159.

[6] Professor Bonbright appears to assert that, in certain circumstances, replacement costs may be used as actual measures of market value. He states "these circumstances may arise when the appraiser is justified in concluding that, were the property in question to be destroyed or lost, an owner would rationally replace it" (loc cit.). The significance of this idea seems to be lost in a later analysis, however. Before the appraiser can know whether an item of property is "worth replacing" or not, he must attempt to explore the income derivable from the property. In other words, he must make use of the capitalized income approach to find out whether the property is worth replacing at current costs. If the figure for capitalized income is lower than replacement costs, the property is *not* worth replacing—by definition—and the replacement cost figures are worthless as direct evidences of value. If the validity of replacement costs must be tested by an application of the capitalized income method, it would seem appropriate for the appraiser to abandon the replacement cost method entirely and adopt the capitalized income method.

CHAPTER VIII

SOME FURTHER COMMENTS ON THE THEORY OF PUBLIC UTILITY VALUATION

COMBINING THE EVIDENCES OF VALUE

In the foregoing chapters three kinds of economic data were analyzed from the point of view of the manner in which each is related to the concept of the market value of a public utility enterprise. These three kinds of economic data were used to describe three different approaches to the unit value of such an enterprise. The first of these was the capitalized income method. This was seen to involve the use of three basic elements, viz., a net income figure (in theory, a figure to indicate expected future income, but in practice, a figure to indicate realized income); a capitalization rate to account for what might be called "time-liquidity preference" and the risks associated with the income expectations; and a measure of the expected future life of the physical property of the enterprise. The second approach that was examined was the stock and debt method of valuation. The raw materials of this method were seen to be the actual market prices of those securities that were traded in the open market, and various other items extracted from the balance sheet of the assessee. The third approach examined was the so-called "cost" approach, involving both the magnitude known as "reproduction cost new less depreciation" and that known as "historical cost new less depreciation."

None of these approaches to unit value was found to be completely satisfactory. No matter how elaborate and scientific the calculations might appear to be, none of them could be accepted as an unequivocal measure of unit value. The most that could be said for any one of these approaches was that it seemed to provide reasonable evidence of the market value of the unit. But the three approaches were not found to be equally admissible, even as mere evidences of market value. The cost approach in particular was shown to have a most restricted application. Indeed it was pointed out that in most situations construction costs (or replacement costs) may not be said to be an evidence of actual market value at all, but merely an evidence of the *maximum* market value that could be claimed at a given moment of time. The capitalized income method and the stock and debt method were shown to contain difficulties of their own, difficulties arising from the atmosphere of uncertainty which surrounds much of the theory. No attempt was made to minimize these difficulties, but it seems obvious that the assessor of public utility property is committed to the use of the capitalized income method and the stock and debt method in spite of their deficiencies. These two approved methods of valuation thus gain their victory by default—by the practical default of the market sales approach, and by the theoretical default of the cost approach.

Assuming that the assessor of public utility property calculates all three of the "evidences" of market value mentioned above, the question remains as to how he should combine the three figures to determine a single figure which he may with some confidence declare to be the market value of a given public utility enterprise. Although there is no generally satisfactory solution to this problem, certain considerations do stand out as of particular significance.

It is clear that if the evidences are to be combined at all they must relate to the same unit of property. As a result, the assessor must take some preliminary pains to assure the comparability of the figures. If, for example, he has chosen to compute the earnings evidence for the operating physical property only, he must be certain to eliminate all references to nonoperating property from the stock and debt evidence and from the cost calculations. The question immediately arises, of course, as to what dollar amounts should be associated with the items that are selected for elimination. In the cost calculations the question is fairly easily answered, for the original costs of the nonoperative property will simply not be included in the basic figures. There will consequently be no "factoring up" process for these items of property. This method may be assumed to give quite acceptable answers, in view of the fact that the functional relationships found to be so important in the case of the operative property tend to be unimportant as between the operative and the nonoperative categories. In the stock and debt evidence the elimination must, for all practical purposes, take the form of a deduction of the book values of the nonoperating assets from the enterprise value. As stated earlier, however, this kind of adjustment cannot be justified by any standards of logic, but only by standards of convenience. If the assessor has a good deal of confidence in his separate appraisals of the taxable nonoperative property, this appraised value may be the more appropriate figure to use in the adjustment of the enterprise value. Of course, the balance sheet figures would still have to be used for the remainder of the nonoperative property. In the earnings evidence itself the elimination of the nonoperating property is the result of an equally arbitrary operation. The deduction takes place before the value figure is computed, for the capitalization rate is typically applied to the net operating income only. But this process can be no more scientific than the process by which the accountant decides to distinguish between net income and net operating income. As suggested in earlier chapters, the arbitrary character of the adjustment for nonoperating property may justify the unit valuation of the enterprise as a whole, rather than the unit valuation of the operating physical property and a separate valuation of the nonoperating property. In any event, whether the nonoperative property is included or excluded, the treatment should be the same for all of the evidences of value.

The inclusion or exclusion of nonoperating property is a decision that can be made only by the assessor. It is a decision that will be based upon his personal preference and upon the character of the evidence that is presented to him. The only instruction offered here is that comparable treatment be accorded all of the evidences of value. But there are other items that appear to be *automatically included* in some of the evidences and *automatically excluded* from the other evidences. Before the evidences may be combined to yield a meaningful market value figure these "natural" differences must be reconciled. One such item is the property purchased by the assessee but not yet installed in the system. This type of property is usually labeled "construction work in progress." Since this property is not yet in operation, it is clearly not represented in the realized income figures. If the calculations are based upon realized income figures, the capitalized income evidence will be understated by an amount which represents such property. One approach to this problem suggests that a certain amount of construction work in progress is necessary for the continued operations of the enterprise, in the sense of "working capital." This idea leads to the further suggestion that some construction work in progress *is* automatically included in the income figures that are capitalized, so that the adjustment need not represent the entire amount shown in the accounts of the company as "construction work in progress." This theory also suggests that the adjustment to the capitalized income figure may be positive or negative. If the actual construction work in progress is greater than that defined as "necessary" for the earning of the income, the portion defined as "not necessary" should be added to the capitalized income figure. If the actual construction work in progress is less than that defined as "necessary" for the earning of the income, the difference should be subtracted from the capitalized income figure. This latter possibility involves the curious notion that the company may have less construction work in progress than was necessary to earn the income that was actually earned. It seems to require a new definition either of the word "necessary" or of the term "net income." An alternative approach is sometimes suggested which would involve using the construction work in progress to adjust the realized income figure to obtain a figure for expected future income. This approach is obviously based upon the plausible assumption that such property is in some way related to the *future* income of the company. Unfortunately, however, the precise relationship between expected future income and construction work in progress is no more readily discovered than other expectational elements. No adjustment is required for the construction work in progress as far as the stock and debt evidence is concerned, for, in theory at least, the final figures are taken to represent the market value of all property owned by the company, including its construction work in progress. Of course it is possible to make the stock and debt evidence comparable to the earnings evidence by making either a negative adjustment to the former or a positive adjustment to the latter. The usual practice, however, is to adjust the earnings evidence upward, in view of the fact that construction work in progress is fully assessable and must be included at some point in the assessment process. The cost figures are easily adjusted by the mere addition of the indicated costs of the construction work in progress to the remaining items of property.

An adjustment of a somewhat similar type is required to account for property purchased by the assessee from out-of-state supplier and not yet delivered to a point inside California. This type of charge is labeled a "progress payment" in the terminology of the Valuation Division of the State Board of Equalization. Here, too, the property is not represented in the income statement but is represented in the balance sheet. As a result, an adjustment is necessary if the two types of evidence based upon these statements are to be made comparable. In this case, however, in view of the fact that this property is not taxable in California until it appears within the boundaries of California, the adjustment usually takes the form of a deduction from the stock and debt figures rather than an addition to the capitalized income figures. It is simply omitted in the calculation of the cost evidence.

One other adjustment of this type was mentioned in Chapter V. This is the so-called "land reversion" adjustment applied to the capitalized income figure. It will be recalled that the need for this adjustment grew out of the fact that the net income of the assessee was capitalized over the expected future life of the *nonland* items of operative property, so that it was necessary to add to the resulting earnings "value" an amount to account for the fact that the land would remain when all other property had depreciated. No such adjustment is required in the stock and debt calculations, for it is assumed that all of this property is considered in the market place and is represented in the prices paid for the company's securities. Since the difficulty arises purely as a result of the special problems which surround the capitalization process as such, it is clearly unnecessary to adjust any of the other evidences of value.

With the possible exceptions of the land reversion adjustment and the question of the inclusion or exclusion of the nonoperative property, these matters seem to involve relatively small amounts of value and might, on these grounds, be omitted. But a strict interpretation requires their consideration prior to the process of combining the evidences of value.

The process of combining the evidences of value to determine a single unit value figure involves, simply, the process of averaging. From the earlier discussions of the character of the cost evidence, however, it is apparent that the cost figures should not be included in the averaging scheme. Their usefulness is restricted to a situation in which the capitalized income figure and the stock and debt figure are larger than the figure for reproduction cost new less depreciation (appropriately adjusted, as described in Chapter VII). In this latter eventuality, the assessor's first step should be a recalculation of the three evidences to assure their accuracy, for the results would be such as to arouse suspicion. If the results were confirmed, the final determination of the unit value should not involve an averaging of the three "evidences," but the elimination of all but the cost evidence. This, at least, would be the conclusion if the assessor were confident that he had included all of those incidental costs concerned with the replacement of the property in the determination of the cost figures, and if he were confident that he had accurately represented the expected future income of the company in the capitalized income calculations. Since it is very difficult to quantify either the character of the income expectations or the costs incidental to replacement, it may very well be that the assessor would lack the confidence required to permit him to assert that the cost evidence and the unit value were the same thing. In such circumstances it appears that a simple average of the three figures would provide the best estimate of the unit value. In those cases where the cost figures are in excess of the other two evidences of value, however, the inclusion of the cost evidence would transmit an upward bias to the unit value figure that would not be warranted by the theory of relevance which attaches to the cost figures.

With the cost evidence thus disposed of, it is necessary only for the assessor to decide *how* he will average the two remaining pieces of evidence represented by the capitalized income figure and the stock and debt figure. There appear to be no grounds for adopting some immutable rule for averaging in this case. In some cases a simple average may suffice; in other cases a weighted average that favors capitalized income may appear to be justified; in other cases a weighted average that favors stock and debt evidence may be called for; in still other cases it may be possible to use only one of these evidences of value to the complete exclusion of the other. The closest approximation to a general principle seems to be that there is a strong presumption in favor of the simple average of the two figures unless there is fairly clear evidence of the inadequacy of one or the other. It is clear that the most important variable in this regard is the adequacy of the stock and debt evidence. This adequacy is determined largely by the amount of market data that it is possible to collect for the particular company in question. At the one extreme are the mutual companies and the subsidiary companies whose securities are rarely, if ever, traded in the open market. For these companies the assessor would be well advised to omit all reference to the stock and debt evidence and to base his value entirely upon the capitalized income evidence. At the other extreme are those companies whose securities enjoy an extremely active market and who are regularly issuing new securities in the open market. In these cases, the assessor is entitled to place a good deal of emphasis upon the stock and debt evidence, and should certainly be persuaded not to make use of a weighting system that gives less than 50 percent weight to the stock and debt evidence. In view of the fact that consistency is an admirable virtue in property tax assessment, it might even be desirable for the assessor to employ a rough sort of weighting formula. Such a formula might make use of a sliding scale, so that progressively heavier weights would be applied to the stock and debt evidence as the percentage of "value" based on market data to the total stock and debt "value" increased, with a zero weight applied to the stock and debt evidence when no market data were available.

Although the assessor must make every attempt to document his findings and to apply standards which conform to some consistent pattern, in the end, this step of combining the evidences of value must remain one of the most subjective and formally unsatisfying phases of the assessment process. The presumption in favor of the simple average is reiterated, however, and the assessor is enjoined as a matter of administrative principle, to make use of this relatively neutral arithmetic unless he can strongly support his allegations of the inadequacy of one or the other of the evidences of value. On theoretical grounds a choice between the capitalized income evidence and the stock and debt evidence is almost impossible. The most important difficulty associated with the stock and debt evidence is the fact that the traded securities usually represent only a small percentage of the total stock and debt structure of the enterprise. The most important difficulty associated with the capitalized income evidence is, no doubt, the practical impossibility of determining expected future net income, although the difficulty of determining a suitable capitalization rate is of almost equal importance. It is impossible to assert, with confidence, that stock and debt difficulties are greater or less than capitalized income difficulties, let alone to quantify the preference in the construction of a weighting system. In terms of administrative considerations (although not necessarily in terms of logic) there is perhaps something to be said for an emphasis of the stock and debt evidence. Certainly it permits a higher degree of objectivity than does the capitalized income method, and there is a value to objectivity *per se*. The common justification of the stock and debt method in terms of its simplicity is invalid in this context, however, for we are not here concerned with the possibility of *eliminating* one or the other evidences of value, except in cases of necessity, but with the possibility of placing appropriate weights on each in the averaging process. If the assessor is going to make the capitalized income calculations in any event, the stock and debt evidence should not be granted additional emphasis because of its simplicity.

Questions relating to the methods of combining the evidences of unit value cannot, then, be answered in any final way. Yet they are important questions to ask. It is only in the most perfect of all valuation worlds that the capitalized income calculations and the stock and debt calculations would yield the same answer if carried on independently.[1] But in all cases in which the assessor is not permitted the confidence which comes from a unanimity of the evidences, he must be content with valuation by averaging at this final stage in the process. The choice of a particular averaging device can nevertheless make a good deal of difference to the ultimate valuation and to the consequent distribution of tax burdens and should not be carelessly undertaken.

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[1] The assumption of independent calculations of these two evidences is clearly essential. If the stock and debt evidence were computed first, it would always be possible to select a capitalization rate which would produce a capitalized income figure which, when adjusted, would be equal to the stock and debt figure.

ADJUSTING THE UNIT VALUE

In California the assessor's job is far from completed when he has determined the unit value of a given public utility enterprise. Part of the unit value will represent property which is either nontaxable in California or which the California Constitution and the California Revenue and Taxation Code do not permit the State Board of Equalization to assess. The adjustments described above were designed merely to make the several evidences of value comparable, and were part of the process of *determining* a unit value figure. Clearly a new set of adjustments is required to remove these nonassessable items from the unit value figure itself. Strictly speaking, this step is not part of the valuation process, but it is part of the process of moving from market value to assessed value.

The list of items for which adjustments to the unit value must be made depends, in part, upon the manner in which the unit value itself is computed. For example, the adjustments are different if the unit value is computed for the entire enterprise than if it is computed for only the operative physical property. Furthermore, it may be that the adjustments discussed above have the incidental effect of removing items of nonassessable property from the unit value, although they have as their basic purpose the reconciliation of the evidences of unit value. In general, however, it may be said that the assessor of public utility property in California is required to remove the following items *at some point* in the process of determining assessed values: (1) property located outside the boundaries of California;[2] (2) franchise value; (3) solvent credits; (4) all other intangible personal property; (5) licensed motor vehicles; (6) property located on United States Government military reservations and other ceded property; and (7) other items such as vessels of more than 50 tons burden and certain trees and vines which may be owned by the utility.

In all of the above cases except the first, it is necessary for the assessor to determine a separate "value" for the item of property being excluded and then simply deduct it from the unit value previously determined. No great claims may be made for the scientific character of any one of these adjustments. They are all determined by rule-of-thumb judgment at the best. For one of the adjustments, viz., the removal of the franchise value, no instructions of any kind seem warranted. There have, to be sure, been many theories offered as to how the franchise of a public utility enterprise might be valued, but none of them stands up under even the most cursory examination. Franchise value has sometimes been equated with goodwill, sometimes with the difference between capitalized earnings and replacement cost. From one point of view there would be good reasons for measuring the franchise value as the entire unit value of the operative property, while another point of view would support negative franchise values in many cases. All of the adjustments in the above list might be interpreted as indefensible contradictions of the unit rule of assessment, but the attempt to determine a separate franchise value shows up this contradiction in bold relief, for it represents an attempt to place a separate market value on something which gives meaning to the business itself. The best advice that can be offered to the assessor as regards this adjustment is that he put down a figure determined by sheer guesswork. But it is difficult to know how a guess of one million dollars would be more available for criticism than a guess of one dollar, for this is one provision in the laws that is not capable of rational administration.

If the computed unit value represents operative physical property only, the adjustments for solvent credits and other intangible personal property will not have to be made. In the calculations which produce such a unit value, the earnings evidence represents a capitalization of operating income and, with the difficulties previously mentioned, may be assumed to omit all reference to income from nonoperative physical property and intangible property. The stock and debt evidence is similarly adjusted prior to the determination of a unit value, the adjustment taking the form of a deduction of the market value figures (where available) for all securities held by the assessee and the book figures for all other intangible property items in the balance sheet. If the unit value computations are such as to yield what we have called an "enterprise value," the adjustments for intangibles will have to be made. Perhaps the best valuation technique to apply to these items is that which simply extracts the book figures from the balance sheet of the company in question, although somewhat more accurate answers might be obtained by making use of the capitalization of the expected future income from the individual items in this category. It is questionable, however, whether the additional purity gained by this device would be worth the additional effort involved in its attainment.

It is sometimes suggested that adjustments for all the physical property items listed above might be made merely by deducting the figures for reconstruction cost new less depreciation from the unit value. If the unit value were lower than the total reconstruction cost new less depreciation of the enterprise, this device would tend to overstate the adjustment and consequently understate the remaining value figure. A more acceptable method involves the computation of the ratio of the unit value to the total reconstruction cost new less depreciation of the enterprise, the application of this ratio to the reconstruction cost new less depreciation of the item of property in question, and the deduction of the resulting "value" figure from the unit value. This, with slight computational variations, is the method currently used by the State Board of Equalization for items (5), (6), and (7) in the above list of adjustments. It is clearly an arbitrary sort of calculation, but it seems to be as appropriate as any other that could be devised.

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[2] The removal of this property from the unit value involves the whole problem of interstate allocation of that unit value. As such, it is discussed under a separate heading below.

The specific character of the adjustments is also determined, in part, by the sequence in which the individual items are considered. Consider the case of an interstate company, for example, for which the assessor has determined a unit value for the entire enterprise. If he decides to adjust for solvent credits and other intangible property by considering the book figures for these items he is probably committed to making this his first adjustment, for it will usually be impossible to say that some of these items are located in California and some in other states. The enterprise value that is allocated to California will then be a value which excludes these intangibles. It is possible, however, to determine the "value" of the California-licensed motor vehicles by considering the reconstruction cost new less depreciation of those motor vehicles which the company lists as being in California. This adjustment might logically be made *after* the allocation of the enterprise value to California has been made. If this adjustment were made before such interstate allocation it would, of course, have to include *all* of the motor vehicles, wherever located, and the formula for the interstate allocation would have to be adjusted so that it would allocate the licensed motor vehicles along with the other property. There seem to be no strong reasons for preferring one technique over the other.

It may be necessary for the assessor to make certain positive adjustments in addition to those negative adjustments discussed above. These, too, will depend upon the nature of the unit value computation. If the unit value refers only to operative physical property, it is necessary to add the value of the nonoperative physical property to the unit value before the tax liability of a given company may be determined. Depending upon the character of the property involved, the separate valuation of this nonoperative property may involve the analysis of comparative sales, the determination of original cost figures with calculations of cost changes and depreciation since the purchase, the capitalization of expected future net income from the property, and so on. Similarly, if the unit value is computed without reference to the property leased from others by the assessee, the leased property must be subjected to a separate assessment (unless the lessor happens to be another state-assessed taxpayer). This step is, of course, required by the provisions of Article XIII, Section 14 of the California Constitution, which requires the State Board of Equalization to assess all property "owned or used by" a listed group of public utility enterprises. The separate valuation of this leased property is probably most appropriately carried out by capitalizing the annual rent at a going rate of interest. Care must be taken in this process to assure that the leasing agreement between the lessee and the lessor is not such as to minimize the annual rental (perhaps for other considerations which the utility might provide the property owner), although the danger of such manipulations is reduced by the fact that leasing arrangements are typically regulated by a public regulatory agency. The resulting value of the leased property will be associated with the unit value of the public utility, although it will clearly not become part of the tax base of the utility. There may, of course, be some agreement between the lessee and the lessor with respect to a "shifting" of the tax to the public utility, but this is of no concern to the assessor. The final required adjustment is that for cash. If the cash shown on the balance sheet as a current asset is deducted along with the other current assets in the process of determining the stock and debt evidence, this item, too, must be added back later. The only problem of "assessment" in this case is the problem of discovery, although in practice the assessor must accept the report of the taxpayer in this matter.

INTERSTATE ALLOCATION OF THE UNIT VALUE

Few problems in the field of public utility tax assessment have stimulated as much interest as the problem of how to allocate the unit value of a public utility whose property is located in two or more states. Here, too, the literature is large and occasionally fruitful. Some of the most interesting discussions of the problem have been concerned solely with the allocation of railroad value on an interstate basis,[3] although it is not difficult to transpose the arguments in such a way that they apply to other types of public utility enterprises. It is not the purpose of the present discussion to develop in detail the techniques which have been suggested or the techniques which might with profit be suggested. Rather it attempts to present a brief statement of the general character of the problem and the general character of the solutions that might be expected.

Perhaps the most common failing in the literature on the interstate allocation problem is the tendency to attempt a justification of one or the other allocation formulae on the grounds of logic. If the logic of the unit rule of valuation be accepted, the attempt to develop a "logic of allocation" must always be fruitless, for the two approaches are basically contradictory. If it is impossible to add up the "values" of the individual items of property to determine the value of the enterprise as a whole, it must be equally impossible to determine the values of the individual items of property by breaking up the value of the enterprise. The argument of the unit rule is that the individual parts of an organic whole have no value as such. The allocation argument represents an attempt to determine the values of these individual parts. The two arguments obviously cannot be reconciled. If the logic of the unit rule is accepted the logic of *any* allocation formula must be rejected. Conversely, if the logic of any allocation formula is accepted, the logic of the unit rule must be rejected. It follows, however, that if the logic of the unit rule is rejected, the allocation formula loses all purpose, for the *separate "valuation"* of the parts is then justified and there is no need to allocate a unit value. In terms of logic, then, the allocation argument tends to destroy itself, for to justify the *existence* of the allocation step on logical grounds it is necessary to justify the unit rule of valuation, and to justify the unit rule of valuation is to prove any allocation formula logically inconsistent. It makes no difference that the "item of property" that is relevant to the interstate allocation process is itself an amalgam of other items of property, for state boundaries cut across functional boundaries in a completely capricious manner. Although the allocation of unit value may be justified on the grounds of legal necessity, it must be recognized as a logical monstrosity.[4]

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[3] See, for example, the *Preliminary Report of the Committee on Railroad Allocation,* National Association of Tax Administrators, Chicago, June, 1947, mimeographed; and the final report of the same committee in July, 1948.

The need for an allocation device clearly stems from the prohibition against the taxation by any state of property physically located in another state. But this prohibition might suggest the simplest kind of allocation formula, which formula would then be justified on the grounds of its convenience rather than its inherent logic. This formula might simply be one that allocated the unit value in proportion to the reproduction cost new less depreciation figures that could be attached to the specific items of property. The many attempts to develop more complicated formulae for allocating unit value seem merely to represent a lingering fear that the "reproduction-cost" formula might involve the taxation of extraterritorial *value* unless it could be held that value were spread throughout the system in the same way as reproduction costs. It is held, for example, that the unit value is influenced by the earnings of the company and that earnings should consequently be included in the allocation formula. This argument, however, assumes that it is possible to determine the net earnings associated with individual items of property as distinct from the net earnings of the system. Even when the company itself has established an accounting system that determines "net operating income" for given states, with a state as the basic accounting unit, this procedure is indefensible. There can be nothing particularly logical about this kind of accounting system, and any allocation formula that makes use of earnings as one of its elements must be just as arbitrary as the accounting procedures that permit its use.

The attempt to allocate unit value by some multivariable formula appears to have arisen not so much out of a desire to assure the fulfillment of the constitutional requirements as out of a desire to assure an "equitable" treatment of the taxpayer. Equity, in this context, has most often been associated with the idea that the sum of the tax bases in each state through which the property of a given utility passes should not be greater than the unit value of that enterprise. Commendable though this purpose may be, it is difficult to see how it can be fulfilled if each state involved determines a separate unit value. The common use of an agreed allocation formula is not enough to provide this sort of equity if the several states are making use of markedly different valuation techniques. In its present stage of development, valuation for property tax purposes is still a matter of state jurisdiction. The only complete solution as far as the allocation problem is concerned would be one that removed the problem. This, however, would involve the radical solution of centralizing the taxation of interstate property in the hands of the Federal Government,[5] with some system of grants-in-aid or subventions based on a more or less acceptable measure of need. A somewhat less radical proposal would permit the centralized assessment of interstate property and the centralized allocation of this unit value by the assessment agency to the several states for local taxation. This latter proposal would not, of course, solve the allocation problem, but it would provide uniformity.

Such centralized assessment or the centralized taxation of such property by the Federal Government is, however, not feasible on other grounds, and the most that can be expected is that uniformity will be established by agreement between the states. The allocation formula takes on a new significance in such agreements, for, although arguments may be presented on quasi-logical grounds, the formula will, in the final analysis, be determined by the relative strengths and persuasive powers of the various parties in the bargaining process. If interstate equity for the taxpayer were all that were involved, and if interstate equity were expressed entirely in terms of uniform allocation patterns by the several states, the problem might just as easily be solved by the application of something like the "reconstruction-cost" formula discussed above. It would not be the formula itself that mattered, but the fact that all states accepted the formula. As a matter of fact, however, some states find it to their fiscal advantage to emphasize the earnings element, others insist that the terminal factor be given extra weight (in railroad allocation, for example), while other states find a clear advantage in the line-haul factors or the miles-of-track factors. Although each state may attempt to justify its emphasis on logical grounds, in the end, the accepted formula must represent nothing more logical than a compromise of conflicting interests. The only criteria that may be applied in the deliberations are that the formula should not place undue fiscal burdens on any one state and that it should be as convenient and easily administered as possible. This may be cold comfort to the assessor of public utility property, but it is all the comfort that can be extracted from the logic of the unit rule of valuation.

INTRASTATE ALLOCATION OF VALUE

The problems of intrastate allocation are basically the same as the problems of interstate allocation. The process contains the same logical flaws and the solution has the same arbitrary appearance, with the difference that these characteristics are even more obvious in the case of intrastate allocation of unit value.

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[4] This point of view is well expressed (although somewhat less vigorously) in Bonbright, J. C., *The Valuation of Property*, McGraw-Hill, New York, 1937, pp. 685-691. The term "unit rule" has a slightly different meaning in this context, although the criticism of the allocation logic is applicable in each case.

[5] This solution would be "radical" only in the sense that it would be contrary to the tradition of state autonomy in property taxation. It would, however, represent merely the extension of the logic which justifies a centralized assessment of public utilities at the state level when other property is locally assessed.

There is, however, one important difference between the case of intrastate allocation and the case of interstate allocation. This difference relates to the issue of centralized administration briefly discussed in the preceding section. It was the *lack* of centralized administration, at both the assessment and the allocation levels, and the consequent conflicts of interests between the various administrative agencies, that prevented the adoption of a relatively simple allocation formula in the interstate case. In the interests of *uniformity per se*, it was necessary to develop an allocation formula that would reconcile these conflicting interests. The multivariable formulae that are common in interstate allocations would thus be justified more as compromises than as rational solutions. In the case of intrastate allocation, however, this problem does not exist. In California there is already a centralized administration of public utility assessment, and the authority responsible for valuation is also responsible for the intrastate allocation of the unit value. Thus, in the intrastate allocation, uniformity is purely a matter of the consistent application of a formula—any formula—and need not show up in the variables of the formula itself. If it is agreed that there is no such thing as an accurate or a scientific allocation formula, and if it is not necessary to reconcile the conflicting interests of sovereign political bodies, the key principles for the assessor to recognize are the principles of *convenience* and *consistency*. Convenience is required because of the large number of separate allocations that must be made every fiscal year. Consistency is required for the simple reason that it is an important component of objectivity in such complex processes.

To assert that the allocation formula must, in the final analysis, be arbitrarily determined is not to assert that the allocation formula is unimportant. In the first place, the formula selected may have a marked effect upon the total property tax liability of the public utility enterprise involved, for it may distribute the bulk of the unit value to either high tax rate areas or to low tax rate areas. It is obvious, however, that the allocation formula should not be constructed with these effects in mind, for to do so would be to violate the cardinal rule of objectivity. The allocation formula is perhaps more important in terms of its effects upon the status of intercounty equalization and the relationship of intercounty equalization to the whole program of state-aid to school districts.[6] It is obvious that the formula itself should be constructed independently of these considerations too, although the effects cannot be denied.

The intrastate allocation formula that is often discussed as one that conforms to the principles of convenience and consistency is the so-called ''reproduction-cost'' formula. As suggested earlier, there are three elements in this formula, the reconstruction cost new less depreciation of the entire property subject to allocation, the unit value of the same property, and the reproduction cost new less depreciation of each item of property included in the total. The application of the formula involves the computation of the ratio of the unit value to the total reproduction cost new less depreciation and the multiplication of the reproduction cost new less depreciation of each item of property by the ratio so determined. This assumes, of course, that the unit value of the property is spread throughout the State in the same way as the ''reproduction-costs.'' There is no particular logic behind this assumption, but, as explained, there is no particular logic behind *any* such allocation assumption.

It is sometimes suggested that this ''reproduction-cost'' formula might be refined by the inclusion of a quasi-income element. This inclusion might take the form of giving a slightly heavier weight to the distribution system than to the generating system of a gas and electric utility, or of giving an extra weight to the property that lies in the centers of population in the case of a telephone company or a railroad on the assumption that these elements describe the major sources of income. This refinement must be rejected, however. It adds unnecessary complexity to the allocation process. Even more importantly, it adds an opportunity to make the whole allocation process extremely subjective. It is, furthermore, based upon the faulty logic that the property at the point of final use is ''more valuable'' than the other portions of the system. It represents a return to the false proposition that the hands of a manual worker are ''more valuable'' than his head because they happen to be more directly associated with the services rendered. The proposition that the distribution system of a gas and electric company can have value if separated from the generating and transmission systems is just as false as the proposition that the hands of the manual worker can have value if separated from his arms, body, and head. In short, the refinement adds nothing to the logic of the ''reproduction-cost'' formula and subtracts a good deal from the simplicity and objectivity of the formula.

The ''reproduction-cost'' formula has some advantages over other formulae that are, perhaps, even simpler to utilize. There seems to be no doubt but that the ''miles-of-track'' formula in railroad allocation is a good deal simpler than the ''reproduction-cost'' formula. But it does not, unfortunately, relate to all *kinds* of property. To apply the formula it is necessary to make an assumption about the *physical* relationships between items of property as well as about the *value* relationships. It is necessary to assume that in all taxing jurisdictions in which the company has taxable property there is a constant relationship between the actual miles of track (for example) and all other kinds of property. This is obviously a false assumption even in the interstate comparison, but has no factual basis whatever in the comparison of individual code areas within the State. The ''miles-of-track'' formula, or any other formula based upon a partial measure, can lead to extremely distorted allocations of value in the intrastate allocation. The advantage of the ''reproduction-cost'' formula in this respect is that a figure for reconstructon cost new less depreciation can be associated with every item of property in the system.[7] Any allocation formula must make assumptions about *value* relationships, but a formula which does not make unnecessary assumptions about *physical* relationships is to be preferred over one that does.

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[6] See Chapter I of this report for a discussion of the problem of intercounty equalization as it relates to the problem of equalization of assessments as between common property and public utility property and as it relates to the problem of state aid.

The possibility remains that the allocation formula be constructed around historical costs rather than around reproduction costs. There is, indeed, a good deal to be said for a formula which allocates according to the spread of the figures for historical cost new less depreciation. These figures, too, can be related to every item of property in the system. Furthermore, they do not contain the difficulties and deficiencies of computation that are involved in the ''reproduction-cost'' formula, for it is not necessary to compute the cost changes that have taken place since the property was installed if the ''historical-cost'' formula is to be utilized. It is sometimes suggested that the ''historical-cost'' formula has a further advantage which comes from the role which the figures for historical cost new less depreciation play in the rate-making activities of the California Public Utilities Commission and their consequent relationship to earnings. This last justification is somewhat tenuous to be sure, but even so, the remaining advantages appear to be conclusive. Perhaps the only fault that might be found with this allocation formula is that it does not seem to conform to the valuation practices of the *local* assessor. It appears that local assessments are, in substantial measure, based upon reproduction costs rather than historical costs.[8] If the ''historical-cost'' allocation could be strongly supported as the *correct* formula (on logical grounds) rather than merely the most *convenient* formula, the comparison with local valuation methods would not be valid. As it is, however, historical cost allocation methods for public utility property *may* distort the pattern of equalization as between public utility property and common property on an intercounty basis. On balance, it may be that there is little to choose between the use of historical cost new less depreciation and reproduction cost new less depreciation as instruments of intrastate allocation.

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[7] Land items probably cannot have "reproduction costs" associated with them, but it seems that an appraised value based on comparative sales and the like is a reasonable substitute. It is, incidentally, usually this appraised value that is added to the "reproduction cost" figures for the rest of the property to obtain the reproduction cost new less depreciation for the enterprise as a whole.

[8] This should be interpreted as an impression rather than as an established fact. As stated earlier, this report makes no attempt to examine the techniques used by the local assessor.

DIVISION III

STATE ASSESSMENT OF PUBLIC UTILITY PROPERTY IN CALIFORNIA

CHAPTER IX

THE VALUATION OF PUBLIC UTILITY PROPERTY BY THE STATE BOARD OF EQUALIZATION

INTRODUCTION

Procedure of the Inquiry

In its study of the valuation techniques currently used by the Valuation Division of the State Board of Equalization the committee has been fully aware of the extreme complexity of this assessment task and the difficulties faced by any administrative agency in attempting to apply rigorous, scientific standards of judgment in areas where such standards are virtually unknown. More specifically, it was recognized that there were five situations in which the adopted techniques might be expected to produce invalid results. The first of these involved the possibility that the administrative agency might be operating under some fundamental misconceptions regarding the broad theoretical basis of public utility valuation. The concept of value, the concept of the unit to be valued, the legitimate indicia of value, and the criteria by which values might be apportioned to taxing jurisdictions are some of the examples of possible sources of theoretical error. In the event that such misconceptions appeared at this basic level of the assessment process, there would obviously be strong reason to suspect the validity of any results finally obtained by any processes, no matter how complex and refined the methods might be. While an understanding of such theoretical fundamentals is of undeniable importance in setting valuation processes in motion along the proper paths, its presence is subject to no easy test by anyone studying this problem. As pointed out in the earlier chapters of this study, valuation theory cannot claim to be a body of scientific principles capable of uniform application to every valuation problem. Differences of opinion are certainly not unique, and even the commonly accepted theories often do not stand the test of careful examination. The investigatory techniques used in this area in this report consisted of discussions with the Chief of the Valuation Division, the examination of certain mimeographed instructions made available to staff members of the Valuation Division, and the extraction of a pattern of theoretical reasoning from the valuation records themselves. Each of these types of evidence was checked for internal consistency; for consistency with each of the others; and, for consistency with the available theoretical literature.

The second area in which error might possibly be found was that of the implementation of these broad theoretical purposes, i.e., the selection and manipulation of data to determine a value that would be agreeable to both the statutory requirements and to the demands of logic. In many ways the investigation of this phase of the valuation process was the most difficult of any undertaken in the present study. Certainly this was the phase that consumed the greatest amount of time and that comprises the bulk of the present report. Once again, the difficulties came, in part, from the insufficiencies of valuation theory. There is not always unanimity of opinion with respect to the specific balance sheet items which should be included; the proper method of determining a rate of interest for the capitalization of income; and the manipulation of many other items of statistical information that may have a bearing upon the value of a large public utility enterprise. The sheer magnitude of the evidence and the limited time and resources available for this investigation presented even greater difficulties which could be only partially removed by a careful sampling of the total list of public utilities assessed by the State Board of Equalization.

A difficulty of concept was also presented by this study. The question arose as to how far any error or inconsistency should be pursued through the valuation process. A concrete example will serve to illustrate this difficulty; a more complete discussion of the case will be found in later sections of this chapter. If it should be found that the cost of replacing individual items of physical property was an invalid evidence of the unit value of the entire system, and if it should be found that the Valuation Division actually did make use of replacement costs for this purpose, would it then be necessary to trace in great detail the techniques by which replacement costs were themselves determined? To be sure, there may be some substantial errors in the use of replacement cost data, but perhaps the fact that it was incorrect to consider replacement cost in the first place would obviate the necessity of further exploration. It was decided, however, that the legislative mandate for this study and the economic and political characteristics of the whole problem of equalization required that the analysis be as exhaustive as possible and that it was therefore desirable to probe deeply into the valuation activities of the State Board of Equalization, in spite of the possibility that higher level inconsistencies held a prior critical claim. Here too, of course, the desire to be exhaustive was somewhat frustrated by the magnitude of the task and by the moderate resources available for its fulfillment.

As the study progressed it became increasingly obvious that it would be necessary to look critically not only at the administration of certain public utility assessments by the State Board of Equalization but also at the statutes themselves. In certain respects the State Board of Equalization is committed to following procedures that can hardly be justified by reference to the principles of unit valuation. These difficulties arise, for the most part, in the allocation step rather than in the valuation step, although they are not entirely foreign to the latter. Many of these diffifficulties can be explained by political necessity and the demands of an extremely complex governmental structure. They do, however, present valuation problems that are incapable of solution on any but the most arbitrary grounds.

The testing of the Valuation Division's techniques of value determination involved a detailed examination of the records on file in the division for the several companies selected for the sample. These records included the many computations of the Valuation Division, and large quantities of statistical material presented to the division and to the Public Utilities Commission by the companies. Here, too, conversations with the personnel of the Valuation Division were indispensable in providing an understanding of many of the technical aspects of valuation and in explaining why principles were occasionally violated in favor of administrative practicality. If time had permitted, it would have been desirable to check the relevance and the accuracy of many of the ''basic'' figures used in the computations and taken from published accounts of stock and bond prices, cost indices and the like, and even of the unpublished figures reported by the companies. Unfortunately, many of these figures had to be taken for granted and their accuracy assumed for present purposes. It was felt, however, that, although the mechanics of such examination would be laborious in the extreme, much of the data could be obtained from freely available publications, and that for this reason there was little likelihood of serious error. In addition, the accounting practices of public utility enterprises are governed by the regulations of the California Public Utilities Commission or by federal regulatory agencies. Such regulation does not, of course, guarantee either relevance or absolute accuracy, but at least its existence may fairly be assumed to minimize the chances of outright misrepresentation.

A third source of possible invalidity that was explored in the investigation was that of simple mechanical errors, i.e., errors in arithmetic and in the transference of figures from sheet to sheet, viz., errors that must inevitably be present in any such extensive and complex computations. It was clearly impossible to attempt to duplicate the mechanical operations of the elaborate calculating machines at the disposal of the Valuation Division (even if this had been thought to be necessary) for the sample companies selected. As a result, no attempt was made to trace the computations for any one company from the beginning of the valuation process to the end. Rather, certain checks were made as by-products of other phases of the investigation and spot checks were made of some of the more elaborate calculations. In addition, a more subjective study was made of the techniques used by the Valuation Division to guard against such errors. It was thought that some such examination was desirable, cursory and incomplete though it would have to be, in view of the fact that small original errors might be magnified in the process of calculation into substantial amounts of tax liability.

A fourth situation which might involve errors of considerable magnitude related to the exercise of judgment by the officials of the Valuation Division. It was recognized, of course, that judgment must play a large role in the valuation process and that the subjective element cannot be entirely ruled out of problems of administrative reality. It is often true, however, that judgments need not be made upon a purely arbitrary basis, even though they cannot always conform to the requirements of scientific method. To the extent that this is true, it is often possible to reconstruct the circumstances which surround a particular decision and to trace the mental processes by which the decision was made. This, for the most part, was the technique utilized in the present study, the results of which are reported in later sections of this chapter. In earlier chapters of this report it was found, for example, that it is often necessary to decide how much weight shall be given to the various evidences of value. Such a decision is rarely amenable to rigorous testing, for it must depend upon a knowledge of the relative limitations of the evidences of value in particular situations and upon an ''informed opinion'' of such things as market behavior, future cost patterns, ''typical'' depreciation schedules, and even the future policies of the rate regulators. In addition, judgment must constantly be exercised with respect to the matter of administrative practicability. Almost any of the tools used in the valuation process could be made sharper by more regular and more careful grinding, but at some point the additional finesse of the results ceases to justify the additional effort (and the additional cost) involved in its achievement.

An attempt was made in the investigation to examine both of these types of judgment—that is, both substantive and procedural judgments. But since the investigation must in itself involve similar judgments similarly unavailable to scientific test, no claims of purity may be made for this section of the report. It was felt, however, that an important purpose would be served in pointing out those areas in the present valuation process in which subjective elements predominate, and, of course, in pointing out any areas in which ''informed judgment'' might be in danger of degenerating into mere whim.

The fifth possibility that it was thought necessary to explore (*and this was always considered a possibility and never a probability*) was that of any undue influence which the public utility taxpayers might exercise upon the valuation process. It was clearly recognized at the outset that there is a legitimate place in public utility valuation for conversations between the officials of the utilities and officials of the state administrative agency prior to the determination of the unit value. It is a simple administrative principle that justifies the ironing out of difficulties by mutual consent in meetings and through correspondence in an effort to minimize recourse to troublesome and costly hearings and litigation. It was recognized that public utilities have as much interest as other taxpayers in arguing their case for lower assessments. But in spite of such recognition, it was necessary to be on guard against the possibility that these bargaining processes be carried too far or that the threat of litigation be used to secure improbable values or that the same opportunities for debate were not made equally available to the small as well as to the large utilities.

In the present study no elaborate system of checks was designed to test for breaches of administrative decorum. It was possible to examine the minutes of meetings between utility and Valuation Division officials, for the files of the division were made freely available to the committee's research staff. In addition, some small amount of correspondence between the two parties was checked and its persuasive content assessed by an observation of the valuation results that appeared. But in large measure the test consisted simply of the whole process of valuation and an attempt to locate any large differences between the computations and the final reported value. If in terms of the records of valuation the final value appeared to be improbably low, further checks were made in an attempt to discover the reasons for the inconsistency. In a sense, too, the checking of mechanical operations was motivated by a recognition of the possible existence of impropriety, for in such complex processes the disguise of collusive intent might easily take the form of computational "error." It is still true, however, that the tests were casual rather than meticulous and that no final answers are presently available.

Thus five problem areas surrounded the inquiry of the committee into the techniques and procedures employed in state assessment of certain public utility property:

1. What are the broad theoretical and conceptual bases employed by the Valuation Division of the State Board of Equalization? Are they in reasonable agreement with the existing body of valuation theory? What concept of value is being pursued? What is the unit of property that is being valued? What theory has been adopted for apportioning value to the several taxing jurisdictions?

2. Are the broad theoretical purposes established under No. 1 above being pursued in an intelligent manner? What types of data are being used as evidences (or measures) of value, and from what sources are these data obtained? Are the available statistics being used in such a way as to produce a measure of the established value concept? Are there statutory or constitutional provisions that prevent the logical completion of the valuation processes?

3. Is there any evidence of significant mechanical error? What precautions are taken against such errors? If mechanical errors are found, do they appear to be "disguise errors" or computational errors?

4. In those areas where judgment is necessary, are the judgments those of a prudent and well-informed person? Which of these areas involves a *substantive* judgment, i.e., in which of these areas would subjective decision be essential no matter how meticulous the valuation process? Which of these areas involves *procedural* judgment, i.e., in which of these areas is it necessary to make subjective decisions for a legitimate administrative simplification? Are there any areas in which the subjective element looms large in spite of the fact that it is administratively and technically possible to make use of less subjective analysis?

5. Is there any evidence of impropriety? Do the values finally reported follow logically from the available data, or do they have a strong flavor of successful persuasion by the taxpayer? Do the small utilities have the same recourse to informal complaint and discussion as the large utilities?

Each of these questions raises a multitude of subsidiary questions. While these cannot be catalogued in this brief introductory chronicle, an attempt will be made to set them forth clearly in the explanatory sections which follow.

The Sample Selected for the Present Study

In 1950 the State Board of Equalization assessed a total of 281 companies under the provisions of Article XIII, Section 14 of the California Constitution. Table 1 shows these companies grouped by major classifications, together with the number of companies and the total assessed value of each group.

TABLE 1

ASSESSED VALUE OF STATE-ASSESSED PROPERTY, 1950

Type of Company	*Number of Assessments*	*Assessed Valuation (Tangible Property)*
Gas and electric	30	$883,998,760
Telephone and telegraph	78	376,368,440
Railroads	42	326,501,090
Intercounty pipelines	36	29,127,100
Car companies (property at fixed locations)	4	3,748,720
Express companies	8	1,741,320
Subtotal	198	$1,621,485,430
Private car companies	83	19,186,250
Totals	281	$1,640,671,680

SOURCE: Annual Report of the State Board of Equalization, 1949-1950, pp. 66-71.

Of the seven types of enterprise listed in Table 1, the Gas and Electric, Telephone and Telegraph, and Railroad groups stand out as those accounting for the bulk of the assessed value. Gas and electric companies alone accounted for some 53.9 percent of the total assessed value (including the private car group). Telephone and telegraph companies accounted for an additional 22.9 percent of the total, and railroads for 19.9 percent. A consideration of these three major categories of assessees would thus involve a consideration of 96.7 percent of the assessed value of all tangible property assessed by the State Board of Equalization as of March, 1950. The fact that all other types of state assessed property accounted for only 3.3 percent of the total assessment provided one important reason for the neglect of these types in the present study of public utility valuation.

There was, however, a more important reason for the decision to concentrate attention upon the first three categories listed in Table 1. This was concerned with the fact that all of the other types are subject to unique problems of assessment, determined in large part by constitutional and statutory provisions. The first paragraph of Article XIII, Section 14 of the California Constitution distinguishes between the pipe line category and all other utilities as follows:

> "All pipe lines, flumes, canals, ditches and aqueducts not entirely within the limits of any one county,

and all property, other than franchises, owned or used by (1) railroad companies including street railways, herein defined to include inter-urban electric railways, whether operating in one or more counties, (2) sleeping car, dining car, drawing-room car, and palace car companies, refrigerator, oil, stock, fruit and other car-loaning and other car companies operating upon the railroads in the State, (3) companies doing express business on any railroad, steamboat, vessel or stage line in this State, (4) telegraph and telephone companies, (5) companies engaged in the transmission or sale of gas or electricity, shall be assessed annually by the State Board of Equalization, at the actual value of such property.''

From this it is clear that only *intercounty* pipe lines, etc., are assessed by the State Board of Equalization and then only the pipe lines themselves are included, rather than all the property of the pipe line companies. In contrast with this, all other types of utilities, whether intercounty or not, are to have ''all property, other than franchises, owned or used,'' assessed by the State Board of Equalization. Thus while it is possible for the Valuation Division of the State Board of Equalization to make use of something approaching the ''unit rule'' of assessment for the majority of public utilities, the use of this technique is virtually precluded in the assessment of those companies in the pipe line category. The remaining three categories of enterprises in Table 1 are, of course, included in the ''unit rule'' section of the Constitution, but two of them, viz., car companies (property at fixed locations) and private car companies, are affected by Part 6 of the Revenue and Taxation Code. This part of the code provides not only for state *assessment* but for state *taxation* of the relevant property as well. Such state taxation is ''in lieu of all other State, county, municipal, or district taxes, according to value, upon private cars and property incidental to their operations, the value of which property is included in the assessment of the cars.''[1] Section 11291 of the Revenue and Taxation Code defines the types of property of the so-called ''private car'' companies that shall be subject to such treatment as follows:

> ''The value of private cars assessed under this part shall include all materials and supplies held, stored, or used in this State by the person owning the private cars, or the receiver or trustee in control thereof, for the purpose of repairing, improving, servicing, or operating the cars. The value of the cars assessed shall not include tools, shop equipment, or other like items of personal property customarily kept or maintained at fixed locations for use in repairing, improving, servicing, or operating the cars.''

The residue of the property of private car *companies* viz., that property not subject to taxation under Part 6 of the Revenue and Taxation Code, is still assessable by the State Board of Equalization under the general provisions of Article XIII, Section 14 of the Constitution, but since it *is* a residue, it is similar to the pipe line group in that recourse to the ''unit rule'' is impossible.[2] The express company category is fully assessable under the ''unit rule'' portion of Section 14 of the Constitution, but, in view of the importance of the first three items in Table 1, little would be added to an understanding of the assessment technique by a consideration of this group of companies.

Once the decision had been made to examine only gas and electric, telephone and telegraph, and railroad companies, it then became necessary to make a further selection from among the 150 companies represented in these groups. The sample finally chosen included two companies from each group, as follows: gas and electric companies, the Pacific Gas and Electric, and the San Diego Gas and Electric Companies; telephone and telegraph companies, the Pacific Telephone and Telegraph, and the Kern Mutual Telephone Companies; and, railroad companies, the Atchison, Topeka and Santa Fe, and the San Diego and Arizona Eastern Railroad Companies.

Of the 30 companies in the gas and electric group with a total assessment of $883,998,760, the largest was the Pacific Gas and Electric Company. With an assessed value of $482,513,560 it accounted for 54.6 percent of the total gas and electric assessment and 29.4 percent of the total assessment of all state-assessed tangible property. The second largest company in the gas and electric group was the Southern California Edison Company, with an assessment of $213,399,460, or 24.1 percent of total gas and electric assessments. The smallest in the group was the Walton N. Moore Corporation, with an assessment of only $1,000. The San Diego Gas and Electric Company had an assessment of $34,267,800 and accounted for 3.9 percent of the total assessment of the group. Taken together, the Pacific Gas and Electric and the San Diego Gas and Electric Companies accounted for an assessment of $516,781,360, or 58.5 percent of the total gas and electric company assessed valuation.

The largest of the telephone and telegraph companies was, of course, the Pacific Telephone and Telegraph Company. The assessed value of the tangible property of this company in 1950 was $334,493,070, or more than 88.9 percent of the total assessed value of this group. The second largest in the group, The Associated Telephone Co., Ltd., was much smaller than the Pacific Telephone and Telegraph Company. The assessed valuation of this company, $28,616,110, accounted for only 7.6 percent of the total. The smallest assessment in the telephone group was that of Mrs. J. O. Hamilton, with an assessment of $100. The other company chosen for the present sample, the Kern Mutual Telephone Company, was assessed at $474,210, or 0.1 percent of the total telephone and telegraph company assessed valuation. Pacific Telephone and Telegraph Company and the Kern Mutual Company assessments totaled $334,967,280, or almost 89 percent of the total for this group.

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[1] Revenue and Taxation Code, Section 11252.

[2] The four companies which comprise this group in Table 1 are the California Dispatch Line, General American Transportation Corporation, Pacific Fruit Express Co., and The Pullman Company. All of these companies appear again in the Private Car Group. Because of this duplication, the total figure of 281 should be understood to refer to the number of separate assessments rather than to the number of companies assessed.

In the railroad category, the largest of the 42 companies was the Southern Pacific Railroad, whose assessed valuation of $158,978,510 was 48.7 percent of the total for this group of companies. In this case, however, the second largest company in the group was chosen for the sample. This was the Atchison, Topeka and Santa Fe, with an assessed valuation of $64,999,370. This assessed value was 19.9 percent of the total for the railroad group. The smallest in the group was the Shasta Springs Resort, Incorporated, with an assessment of $900. The San Diego and Arizona Eastern Railroad had an assessed valuation of $1.509,320, or 0.5 percent of the total. The Atchison, Topeka and Santa Fe and the San Diego and Arizona Eastern Railway Companies combined accounted for an assessment of $66,508,690, or 20.4 percent of the total for the group.

The companies chosen for the sample thus accounted for approximately 57.9 percent of the assessed valuation of the tangible property of the first three groups of public utilities listed in Table 1. In these terms, the telephone and telegraph companies are the most representative portion of the sample; the gas and electric companies rank second in representation; and the railroad companies rank third in representation in the sample.

If the companies selected for the sample are related to the total assessed valuation of *all* state-assessed property (including Private Cars) in 1950, it will be observed that the sample includes the largest company (Pacific Gas and Electric Company) and the second largest company (Pacific Telephone and Telegraph Company). If we add the Atchison, Topeka and Santa Fe to these, we have a total assessment of $882,006.000, or 53.8 percent of the total. The whole six-company sample accounts for an assessment of $918,257,330. This is 56 percent of $1,640,671.680, the total assessed valuation in 1950 of all public utility property subject to state assessment (including the Private Car group). Thus, although only six out of 281 companies were chosen for the sample, the heavy concentration of assessed valuation in at least three of the companies chosen makes the sample representative from the point of view of the total assessed valuation which it includes.

The six companies were, however, chosen for reasons other than those described in the above statistics. Obviously a sample that would have represented even more of the total assessment could have been obtained by considering the largest and the second largest companies in each group. But there are important and unique problems associated with the assessment of smaller companies, and it was thought that some attention should be given to these. As a result, the sample includes a large and a small gas and electric company, a large and a small railroad, and a large and a small telephone and telegraph company.

It was also desirable that the sample give reasonable representation to several valuation problems that have proven in the past, in both theoretical literature and in practical experience, to be particularly troublesome. Two of the companies, the Pacific Telephone and Telegraph Company, and the Atchison, Topeka and Santa Fe Railway Company, are interstate companies. (The San Diego and Arizona Eastern Railway is an international company, extending below the Mexican border for part of its length, although no particular attention was given to this fact in the sampling process). All of the companies are intercounty in character, although in varying degrees. The Pacific Telephone and Telegraph Company operates in 57 counties (Alpine County being serviced from the State of Nevada); the Pacific Gas and Electric Company in 48 counties; and Atchison, Topeka and Santa Fe in 20 counties; the San Diego and Arizona Eastern Railway Company in two counties; the San Diego Gas and Electric Company in two counties; and the Kern Mutual Telephone Company in three counties. One subsidiary company is included in the sample, for the San Diego and Arizona Eastern Railway is a subsidiary of the Southern Pacific Company. The peculiar problems associated with valuing mutual companies are covered by the inclusion of the Kern Mutual Telephone Company. Thus, although no statistical measure can be made of the representativeness of the sample from such qualitative points of view, it is believed that, in view of the limitations of time and resources, the present sample of companies is as satisfactory as could reasonably be expected.

Once the sample had been chosen, it was decided to make use of the Pacific Telephone and Telegraph Company as the ''pilot'' company of the study. Before any other company was examined (in anything but the most cursory manner), a rather full investigation was made of the Pacific Telephone and Telegraph Company so that it would be possible to have a clear picture of both specific techniques and general policies before a plan of analysis was devised. This company was chosen because it was felt that it would contain almost all of the basic problems of the several companies in the sample and yet be somewhat less complicated in its technical and computational aspects than the Pacific Gas and Electric Company.

One important limitation to this analysis of the valuation techniques currently in use must be set forth at this point. This derives from the fact that the study applies only to the assessments made for the years 1951 and 1952. For many reasons this is an inadequate coverage. The valuation techniques are undergoing important changes more or less constantly and it is important to note the direction of change and to determine whether or not improvement is indicated. In addition, it would be valuable if an historical survey could be made of the trends of public utility assessments as compared with the trend of common property assessments.[3] Then too, it is clearly impossible for the Valuation Division to examine every improvement and every parcel of land for every utility in every year. The Valuation Division estimates that it can physically examine every item of property (really only land and improvements) of the large utilities only once in every five-year period. As will be shown in later sections of this chapter, it is important to examine the purity of these techniques of physical examination, and for this reason, the present study would gain much by making use of historical data. It will be readily understood, however, that the few months at the disposal of the committee for this investigation would permit no such elaboration, essential though this is for complete understanding.

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[3] This is not to imply that any quick and easy comparison of assessment trends can be used to establish the validity of the equalization process. There may be very good reasons why the assessments of one increase or decrease more rapidly than the assessments of the other. These reasons can only be brought to light by a more complete study than has been possible to this time. But certainly an historical study of public utility valuations would be an essential part of such a study.

The Method of Exposition

In view of the large amount of statistical material required for the valuation of the six public utility companies in the sample, and in view of the rather technical nature of its use, a considerable problem of exposition was involved in the execution of this section of the report. On the one hand, it was felt that there was a need for a complete and an accurate explanation. But since the individual pieces of the valuation puzzle fit so tightly together, and since the absence of any one of the steps would prevent the emergence of the total picture, the desire for completeness could hardly be satisfied by anything short of an exhaustive analysis of the valuation process, step by step from the ''basic'' raw materials to the final certification of the state assessment rolls to county tax officials. A similar difficulty was presented by the fact that the Valuation Division does not make use of a uniform system of valuation that may be applied without adjustment to each of the six companies in the present sample. It appears that each company is looked upon as presenting certain unique valuation problems. As a result, the techniques of value determination often differ quite markedly as they are applied to these several companies. A comprehensive analysis would then require the repetition of the step-by-step explanation for each of the six companies.

On the other hand, there was obviously a need for clarity and simplification. If it was important for the analysis to be comprehensive, it was equally important for the exposition to be comprehensible. This, in turn, required a neglect of minutiae and a treatment only of the general process, and sufficient brevity to facilitate an easy understanding of the major issues.

Clearly, the only way to solve the problems of exposition presented by these two irreconcilable aims was to include them both. As a result, the explanation that follows is broken up into two parts, the first of which purports to be a general description of the valuation process (the present chapter), and the second of which purports to be as complete and particular a description of these processes as is possible in a report of this type (following chapters).

The general explanation includes no mention of particular companies; nor is it concerned with the use of statistical material, except as this may be useful for illustrative purposes. It must be clearly recognized that this first material is subject to all of the limitations which commonly attach to a process of generalization. It consciously simplifies the process; it purposely omits certain essential steps in the mechanics of valuation; and it unavoidably gives the impression of greater purity than actually exists in the techniques which are employed.

Two problems are recognized in this general analysis —the manner in which the unit value is *determined*, and the manner in which this value is *apportioned* to the various taxing jurisdictions. The descriptive procedure will involve starting with the unit value as finally determined and working back through the various evidences of value and the methods by which these evidences are themselves determined to the evidence which is considered ''basic'' for the purposes of this report. It is impossible fully to separate the valuation and the apportionment problems at this level, for the Valuation Division mixes the two in its own operations. No attempt is made to criticize the techniques and procedures employed at this point in the discussion. This is reserved for later discussion when the general and the particular criticisms are drawn together and presented at the same time. The present discussion attempts to be merely a factual description of the valuation techniques as they actually exist.

The particular explanation contained in following chapters begins with a discussion of the Pacific Telephone and Telegraph Company as the ''pilot'' company for the study, and traces the valuation process in specific detail from the final unit value to the ''basic'' evidence and then through the process of apportionment. Unless otherwise mentioned, all of the statistical material is taken from the work sheets of the Valuation Division of the State Board of Equalization, although the form of presentation is slightly altered for present purposes. Of necessity, much of the textual material is an explanation of the tables, although an attempt is also made to point out those areas in which there is significant divergence from the generalized process and from the basic theory of unit valuation. Here too, however, no attempt is made to formulate a precise criticism of the process, and critical comments are included only insofar as they assist in the explanation of the process itself. The study of the Pacific Telephone and Telegraph Company is followed by similar, although more restricted, studies of the remaining companies of the sample—first of the Kern Mutual Telephone Company (to complete the telephone and telegraph group), then of the two gas and electric companies, and finally of the two railroad companies. This portion of the explanation is aimed at pointing out the differences between the techniques applied to the particular company under examination and those applied to the Pacific Telephone and Telegraph Company. But in view of the desirability of providing sufficient information for a complete valuation of these other companies, there is, of necessity, some considerable duplication in the explanations.

THE VALUATION PROCESS IN GENERAL

Valuation Under the Unit Rule

In the process of assessing the value of public utility property the Valuation Division of the State Board of Equalization has committed itself to the determination of a ''unit'' or a ''system'' value and to a subsequent apportionment of this value to the many taxing jurisdictions within the State and to the three major property categories of land, improvements, and personal property. In its basic aspects this treatment conforms to the generally accepted theory of public utility valuation, which, as described in earlier chapters of this report, starts out with the assumption that it is meaningless to talk about the value of a mile of track, a steam generating plant, or a mile of underground cable apart from the value of the entire operating system of the public utility enterprise. It is also an important proposition of the theory of unit valuation that, although the Federal and State Constitutions may require that this system value be split up and an assessment figure reported for the various individual items of property according to their geographical locations in certain taxing jurisdictions, the allocation factor must be arbitrarily determined. If it is illogical to add the values of individual items of property together to obtain the total value of all of the property of the utility, it must be equally illogical to determine the value of individual items of property by chopping up the unit value. The validity of the unit rule must stand or fall upon the validity of the claim that the entire operating structure is an organic whole that can be broken up into its component parts, either before or after the unit value has been determined, only at the expense of the principle itself. Any allocation, the unit rule insists, must be subject only to the tests of political necessity and administrative convenience, and not to any rigorous tests of logic. In this aspect, too, the demands of the unit rule and the techniques of the Valuation Division are in substantial conformity.

The moment this general conformity has been located, however, it is necessary to introduce an important qualification. In the case of the valuation of the property of interstate utilities, the division assumes that it is possible to determine something called a "system value for California only"—that is, a value for all utility property lying within the boundaries of California, which property is considered to be a unit unto itself and capable of valuation. This qualification, to be sure, does not apply to all of the *evidences* of value used by the Valuation Division, for two of these evidences *are* subjected to an interstate apportionment. It does, however, apply to two other evidences of value, and, to the extent that these latter are considered in the determination of the so-called unit value, the qualification is legitimately introduced at this point. This apparent violation of one of the most essential elements of the unit rule will be clarified in the subsequent general explanation and will be illustrated in considerable detail in the later discussion of the two interstate companies in our sample.

Much the same thing applies to the treatment of other items of nontaxable property. The value of licensed motor vehicles, for example, is removed before a unit value figure is determined. In addition, many items of property located within the exterior boundaries of California but not taxable in California (improvements located on federal property, etc.) are not included in the unit value figures. Thus, *as a result of the particular way in which the Valuation Division chooses to administer the statutes*, it is difficult to point to a certain figure and say "this is what the division considers to be the value of this company taken as a whole."

In the techniques currently utilized by the Valuation Division the determination of the "system value for California only" involves the use of four basic evidences of value, two of which are further divided. These evidences are as follows:

1. Historical cost new less depreciation
2. Reproduction cost new less depreciation
3. Capitalized earnings[4]
    - (a) 1-year basis
        - (1) Capitalized at 5 percent
        - (2) Capitalized at $5\frac{1}{2}$ percent
    - (b) 5-year average basis
        - (1) Capitalized at 5 percent
        - (2) Capitalized at $5\frac{1}{2}$ percent
4. Stock and debt values
    - (a) 1-year basis
    - (b) 5-year average basis

If the capitalized earnings evidence is considered to consist of four separate evidences of value, and if the stock and debt evidence is considered to consist of two separate evidences, there are, in reality, eight figures which give evidence of the unit value of the relevant property. It is clear, however, that the four methods of computing earnings evidence and the two methods of computing stock and debt evidence are qualitatively different from the others. It would be mathematically impossible for the same net earnings to yield the same value figures if the earnings were capitalized on the one hand at 5 percent and on the other hand at $5\frac{1}{2}$ percent, and it would be the strangest of mathematical coincidences if the earnings and the stock and debt values for one year were the same as those computed from five-year averages. Theoretically, however, it is possible for *one* of the capitalized earnings figures to be the same as *one* of the stock and debt figures. In view of the arguments of the unit rule, there is considerable doubt regarding the comparability of the two cost evidences with the capitalized earnings and the stock and debt evidences. It is apparently assumed, however, that the former could, in the "most perfect" of all valuation worlds, yield value figures which were identical with those of the latter.[5] Thus, the use of the two capitalization rates (and, for all practical purposes, the use of the two averaging periods) *must* yield different value figures, while in theory (and accepting the reasoning of the Valuation Division regarding the relevance of cost evidence), the four *basic* evidences of value *could* yield the same value figure. The fact that the capitalized earnings and the stock and debt figures are computed in several ways is certainly indicative of uncertainty as to the proper method of computing these figures. Moreover, the fact that *several basic evidences of value* are computed (those labeled 1, 2, 3, and 4 in the above list) is further indicative of a realization that the limitations of the data are such that in practice the figures never can be made completely comparable.

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[4] The capitalization rates mentioned in this section are purely illustrative. The 5 percent and $5\frac{1}{2}$ percent rates were actually applied in 1951 but these were changed for the 1952 valuation for some companies.

[5] This point would, perhaps, not be admitted by the officials of the Valuation Division. As will be shown later, however, *this conclusion is implicit in the system of weights which the division has adopted.*

In any event, the figures obtained for the four evidences of value are often widely divergent. As a result, there is a need for some reconciliation of these figures in the determination of a final unit value. This reconciliation consists, at the present time, of the application of a system of weights combined with a large amount of subjective judgment.

The System of Weighting Evidences of Value

Much of the ensuing discussion is devoted to an explanation of the techniques by which the several evidences of value are themselves determined. For the moment, however, it may be assumed that these figures are known and that the only remaining problem is concerned with how much importance should be attached to each of them in the determination of a final unit value.

On the assumption that there is no reason for preferring one of the value evidences over the others, it might be expected that the final value figure would be the result of a simple averaging of the four (or eight) evidences of value. This, however, is not the case. Although practices differ as they are applied to different companies, the Valuation Division chooses to record the results of four or five different weighting systems. This multiple weighting system is *not* the result of any scientific determination of the relative importance of the several evidences of value. It results from uncertainty as to whether greatest emphasis should be placed upon earnings; upon stock and bond values; or upon cost evidences. Thus a series of schemes are considered in making the final decision on unit value.

The first of these weighting systems that is usually computed is one which gives equal weight to the four basic evidences of value and which is separately computed four times to apply to the one-year and the five-year bases of earnings and stock and debt computations and to the 5 percent and the 5½ percent capitalization rates. This system of equal weights is applied simply by multiplying each of the four evidences of value by 0.25 and adding up the results. It is equivalent, of course, to a simple average of the four figures. A second weighting system that is often used assumes that a 20 percent weight should be given to historical cost, a 10 percent weight to reproduction cost, a 50 percent weight to earnings, and a 20 percent weight to stock and debt values. Each of these evidences of value is then multiplied by the appropriate weight and the results added. These weights too are applied to the earnings and stock and debt figures computed in the alternative ways. A fairly common series of weighting systems is shown below. The first two columns have already been mentioned.

	1	*2*	*3*	*4*	*5*
Historical cost new less depreciation	25%	20%	10%	30%	30%
Reproduction cost new less depreciation	25%	10%	10%	30%	10%
Capitalized earnings	25%	50%	40%	30%	40%
Stock and debt value	25%	20%	40%	10%	20%
Totals	100%	100%	100%	100%	100%

If five separate and alternative weighting systems are applied (as in the above illustration), and if each is applied four times (in view of the alternative methods of computing earnings and stock and debt evidences), there are, of course, *20* separate and alternative figures that could be taken to be the unit value of the company. If, to these 20 *weighted* figures we add the eight original *unweighted* evidences of value (on the assumption that any *one* of them might be the "true" value figure), the total number of possible values is increased to *28*. The next step in the process involves the determination of the unit value from these 28 weighted and unweighted evidences of value.

Before this step is discussed, however, it must be emphasized that the systems of weighting illustrated above are neither sanctified by scientific rule nor consistently applied by the Valuation Division. They are, in effect, rabbits drawn from a hat. As is often true with other acts of apparent magic, if the audience demands further evidence of good faith, another rabbit can always be materialized in an instant. At the outset, the application of a *series* of weighting systems indicates serious uncertainty as to the logical importance that should be attached to the several evidences of value. If any one of these weighting systems could be justified by logic, all of the others would automatically be refuted. For example, if it were possible to determine that earnings evidence were worth as much as all the others combined, that historical cost and stock and debt values were of equal importance and that each was twice as important as reproduction cost, the system of weights whereby historical cost was multiplied by 0.20, reproduction cost by 0.10, earnings by 0.50, and stock and debt value by 0.20 would be chosen, the results added, and the matter would be at an end. However, it must be concluded that a multiple weighting system has been adopted because no such a determination is deemed to be possible.[6]

The Determination of the Unit Value

This is obviously the most important step in the whole process of valuing the property of public utility enterprises. It is also the step that is most subjective in character. The unit value is *not* determined by averaging all of the weighted value figures, nor by taking the value that is midway between the highest value and the lowest value on the work sheets, nor by applying any other mathematical formula simple or complex. It is determined by considering the 28 alternative value figures which have been calculated and relating these to matters of general knowledge about the company in question. It may be that in the opinion of the Valuation Division the stock market underestimates the profit possibilities of the company as these profits are indicated by present earnings, the past trend of earnings, probable rate increases by the Public Utilities Commission, the potential success of large expansion programs, or the strategic location of the company for the acquisition of military spendings. If such were the case, the weighting system that gave more attention to earnings than to stock and debt values would be emphasized. Or it may be that in the opinion of the Valuation Division earnings are ''artificially high for the current year.'' Consequently, a five-year average of earnings might be favored. Close attention is also usually given to the unit value determined for the preceding year, and a unit value for the present year that is greatly different from its predecessor is not accepted unless the evidence is overwhelming. Conversations with company officials, in which all of these and many other factors affecting the general welfare of the company are discussed, also play an important role at this point in the valuation process. The unit value figure finally chosen is usually a rounded figure which falls somewhere among the various weighted values. This latter practice is not consistently followed, however.

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[6] It can be shown, of course, that any multiple weighting system can be reduced to a single weighting system. Thus, if the five-weight system described above were chosen, the average of the five resulting values (assuming earnings and stock and bond values to be computed on a one-year basis and earnings capitalized at 5 percent) would be identical to that obtained by multiplying historical cost by 0.23, reproduction cost by 0.17, earnings by 0.37, and stock and debt value by 0.23 and adding the results. It will be clear from the discussion of the manner in which value is finally determined why all of the figures (rather than merely the combined results) are computed and recorded.

For the Pacific Telephone and Telegraph Company, the highest relevant figure on the work sheets of the division for 1951 was that for reproduction cost new less depreciation. This figure was $1,075,962,896. The lowest of the single evidences of value was $565,999,276, the average net earnings for the five preceding years capitalized at 5½ percent. The weighted value figures ranged all the way from a high of $904,108,400 to a low of $672,804,900. The simple average of all of the 20 weighted values for 1951 (not computed by the Valuation Division) was $799,136,600. The unit value for *1950* was established at $663,915,580. The unit value established by the Valuation Division of the State Board of Equalization for *1951* was originally $755,103,350. After correspondence and conversations with company officials, the unit value finally established was $750,000,000.

The quantity of money held by the company, and the total value of the property which the company leases from others, are not considered to be part of the unit value. Consequently they are added to the unit value to obtain the total market value of all of the taxable property ''owned or used'' by the company in question.

From this illustrative case it can be seen that the weighting system, although elaborate and scientific in appearance, serves as nothing more than a guide. There is, to be sure, some small obligation to choose a value that is in rough conformity with the several value possibilities which emerge from the weighting process. But beyond this, the final determination of the value of a company is not subject to mathematical formula, systematic method, or conventional practice.

The Computation of the Cost Evidences

The next step further back in the process of determining the unit value of the company involves the determination of the eight evidences of value which are included on the weighting sheet. The first two of these that we shall discuss are the two cost evidences—Historical Cost New Less Depreciation (HCNLD) and Reproduction Cost New Less Depreciation (RCNLD). These are logically discussed together because they are the products of the same computational process and derive from the same basic data.

Two other cost concepts are involved in the computation of the two cost evidences mentioned above. These are Historical Cost New (HCN) which sometimes, with slight adjustments, is called ''Original Cost,'' and Reproduction Cost New (RCN). Although these several cost concepts have been discussed in the earlier chapters of this report, it seems advisable to restate their basic characteristics and the manner in which they are related, preparatory to a discussion of the nature of their computation.

Historical Cost New

The concept of historical cost new is undoubtedly the clearest of the four cost concepts here considered. It represents the recorded costs of purchase, construction, and installation of the individual items of property that make up the existing plant. It may be, for example, that certain items of property were purchased and installed in 1937 and recorded, under the accounting prescriptions of state or federal regulatory agencies, in the accounts of the company at their actual costs. If property were added in the period between 1937 and 1951 this too would be recorded at its actual cost and labeled for the date of its purchase. Similarly, any property that was retired in the period between its purchase and the tax date would be written off and would not appear in the figure for historical cost in 1951. The historical cost new figure as of December 31, 1950 would include only those items of property that were actually part of the property structure of the utility at that time and would consist of cost figures that applied to a series of dates on which the individual items of property were acquired. In almost all cases these data may be obtained directly from the original accounts of the company. In other cases, where the property is of such distant origin that the original records have been lost or where the original property records are inadequate for present purposes, the figure for historical cost new must be determined by a special valuation that attempts to estimate these costs as of the time of their actual occurrence. In the concept of historical cost new which is used by the Valuation Division, the costs of installation and other supplementary costs are included. Some of these items have been listed by the Valuation Division in a mimeographed paper written in 1944 and entitled ''Supplement to Paper on General Procedure of Assessing Utility Property'' as follows:

> ''The book value of land includes all costs incurred in land purchase. Some of the costs included are

title insurance, right of way agent's salary and expenses, legal fees and court expenses incurred in condemnation or clearing title, commissions paid real estate brokers, notary fees, recording fees, and assessments for street work and sewers.

"Historical cost includes such items as organization, engineering, cost of franchises for use of streets, etc., patents, research, development, and other intangible items, as well as the cost of physical items of property. Interest, legal expenses, and taxes during the time of construction are also included."

Reproduction Cost New

In the determination of *historical* cost new the question that must be answered is "what *did* these various items of property that that are part of the present property structure of the company cost when they were constructed or purchased?" In the determination of *reproduction* cost new, however, the question that must be answered is "what *would* these various items that make up the present property of the company have cost if the construction costs that prevail at the present time had been in existence when the items of property actually were constructed?" Thus, while the answer to the historical cost question must be factual. the answer to the reproduction cost question must be hypothetical. If we consider the item of property that was added to the utility system in 1937, the problem of determining the reproduction cost new of this item would involve an estimate of what it would cost to construct that same item of property, with exactly the same physical characteristics, and with exactly the same type of installation and other supplementary requirements, under present cost conditions. The same estimates would be required for all of the items of property acquired at subsequent dates. Here, too, of course, those items of property retired prior to a given tax date would be excluded from the computation.

This concept of reproduction cost new does not envision a replacement of the existing property with property of a more modern type than that originally installed. Nor does it envision a replacement of the entire plant as a unit. Nor does it envision a replacement of the property in its current depreciated state. It *does* envision a replacement of the present property with property the physical characteristics of which are identical with those of the present property when the latter was new. Furthermore, it envisions the replacement process to be undertaken in the same piecemeal fashion as that involved in the original addition to property and its subsequent betterment.

From this it is clear that the only difference between historical cost new and reproduction cost new is the difference between the level of costs that prevailed when a particular item of property was acquired by the company and that which prevails on the tax date. In a world in which the long-run trend of prices has been upward, this, of course, means that reproduction cost new will typically be larger than historical cost new.

Historical Cost New Less Depreciation

This cost concept, as the title indicates, is simply the historical cost of individual items of property adjusted for the depreciation that has attended their use in the period between the acquisition of the property and the tax date. Depreciation is thus the only new element that is added to the earlier concept of historical cost new. As conceived and computed by the Valuation Division, depreciation is not accounted for by a deduction of the book charges in the accounts of the company. Rather it is accounted for by the determination of a "condition percent" which involves the estimation of the total useful life of a given item of property and the determination of the present condition of the property relative to that life. For example, the property added in 1937 may, in 1950, be found to have lived one-half its useful life. The condition would then be estimated at 50 percent and historical cost new would be multiplied by that factor to obtain historical cost new less depreciation.

Although mathematical formulae based upon "typical" depreciation experience are called upon to describe the particular characteristics of the line of depreciation, the periodic physical examination of much of the property of a large public utility permits account to be taken of an obsolescence factor and provides a double check on the "condition percent" of the property. As far as could be determined, however, no clear and consistent techniques have been developed by the Valuation Division for the application of an obsolescence factor. The most that can be said is that its existence is noted and that the condition factor is adjusted in those cases where obsolescence is both extreme and obvious.

The one exception to this method of arriving at historical cost new less depreciation is in the treatment of land. In the concept of the Valuation Division, land is a nondepreciable item of property. As a result, the historical cost new less depreciation for land is always the same as the historical cost new.

Reproduction Cost New Less Depreciation

The concept of reproduction cost new less depreciation follows naturally from the other three cost concepts. It involves the assumption that the existing plant is to be reproduced at current levels of costs. It is not, however, to be reproduced in its original form, but in its present, depreciated form. As with reproduction cost new, of course, the process of reconstruction is assumed to be piecemeal rather than *en masse.*

It is difficult to conceive of reproduction cost new less depreciation as a cost which might actually exist in the real world. It is clearly impossible to reconstruct an item of property in a depreciated form, since, by its very nature, depreciation is something that occurs only as the product exists and is used over a period of time. Although it is possible to install man-made "termite" holes to give an antique flavor to a piece of furniture, or to construct a chair so that it seems to have supported centuries of spinal columns, the results are usually obviously artificial, and in any case would not conform to a true depreciation concept. Much the same thing is true in the present case. It is hard to imagine a telephone pole being reconstructed in a semidepreciated state and it is consequently hard to imagine how much it would cost to have this curious sort of work done under contract. The concept is meaningful only if it is considered as a mathematical construction or if it is considered to represent what an individual would pay for the item of property if it were to be purchased in its present form. It is this latter expression of reproduction cost new less depreciation that raises the important question as to the applicability of the concept to the problem of valuing public utility property. This question, however, is reserved for further critical exploration in Chapter XIV.

In the determination of the two cost evidences of value, viz., historical cost new less depreciation and reproduction cost new less depreciation, there are three ''known'' elements. The first of these is historical cost new; the second is the factor that indicates changes in construction and other costs over the past life of the property; and the third is the condition percent factor that indicates the depreciation of the property from the time of its installation to the tax date. If these three elements are known, the computation is simple (conceptually, at least), for it involves the multiplication of historical cost new by the cost factor to obtain reproduction cost new, the multiplication of historical cost new by the condition percent to obtain historical cost new less depreciation, and the multiplication of reproduction cost new by the condition percent to obtain reproduction cost new less depreciation.

This computation might be more easily understood in a summarized and symbolic form.

The known elements are:

1. HCN—Historical Cost New;
2. F—the cost factor that indicates the percentage change in costs over the period of time between the original installation of the property and the tax date; and
3. D—the ''condition percent'' that indicates the percentage of the total life of the property that has already expired—represents the depreciation element.

The unknown elements are:

1. RCN—Reproduction Cost New—not considered to be an ''evidence'' of value, but a necessary step in the computation process;
2. HCNLD—Historical Cost New Less Depreciation—an evidence or valuation (in the concepts of the Valuation Division); and
3. RCNLD—Reproduction Cost New Less Depreciation—an evidence of value (in the concepts of the Valuation Division).

The computation process is then illustrated as follows:

1. $RCN = (HCN) \times (F)$;
2. $HCNLD = (HCN) \times (D)$; and
3. $RCNLD = (RCN) \times (D)$.

In view of the large number of individual items of property included in the operating structure of a modern public utility enterprise, it is clear that the mechanics of this computation on a yearly basis would be prohibitively laborious. As a result, the Valuation Division makes full ''reproduction cost studies'' for the large companies only about once every four or five years. In the intervening period, the factors are computed by a technique that is *complete* but not *exhaustive*. This yields an admitted approximation for these years, an approximation made necessary, however, by the magnitude of the task.[7]

As indicated above, land is not subject to this ''factoring'' process. Instead of applying the factor F to obtain reproduction cost new for land, the Valuation Division carries out a physical appraisal for the land items. Since land is considered to be a nondepreciating item of property, the factor D is one. This, in turn, means that for land, $HCN = HCNLD$, and $RCN = RCNLD$. Once again, it is mechanically impossible for the Valuation Division to conduct a physical appraisal of all of the land items for every company every year. In any year in which individual parcels of land are *not* appraised, reproduction cost new for that year is simply the reproduction cost new for the last year of appraisal plus the historical cost new of any land added to the system since that time, and minus the latest reproduction cost new of any retirements. Here, too, the approximation is justified on the grounds of administrative necessity.

Further simplifications are possible because of the unique characteristics of some types of property. Thus, property represented as ''Construction Work in Progress' is, without too much artificiality, assumed to be undepreciated (though obviously not undepreciable, unless it is land). And only under special circumstances would it make any important difference to neglect the changes in costs that might have occurred during the process of construction. With no depreciation and no cost changes to account for with this type of property, the same figures can be (and typically *are*) inserted for each of the four cost concepts.

The Basic Data for the Computation of Cost Evidences

As indicated above, the basic cost data take the form of information regarding the historical cost new of individual items of property; changes in cost levels over a period of time; and typical depreciation patterns over a period of time. The Valuation Division taps a large number of sources to obtain these data.

Historical Cost New

The source of the data on historical cost new is, of course, the accounts of the companies subject to valuation by the State Board of Equalization. The Valuation Division does not, however, go directly to this source. Rather it requires the companies to submit annual reports that provide these data in varying degrees of summarization. The most detailed of these reports is the ''Tangible Property List'' on which are listed all items of tangible property except money and licensed motor vehicles. All of these items (except the rolling stock of railroads) are listed by code areas,[8] and land is further described geographically by a system of serial numbers that show company, county, map number, and parcel number on land identification maps. With each of the items of property listed on the Tangible Property List a historical cost new figure is reported. This is true for all items of property except land and those properties called, in the terminology of the Valuation Division, ''continuous structures.''

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[7] The methods used in this approximation are illustrated in further detail in later sections of this chapter and, of course, in the discussion of particular companies in the following chapters.

The so-called ''continuous structures'' of public utility enterprises are those items of tangible property that are physically connected in a continuous operating structure. Thus, electric transmission and distribution systems, gas transmission and distribution systems, telephone toll and exchange systems, and railroad track are considered to be continuous structures. The historical costs of these items are listed separately on a report submitted by the company and called ''The Derivation of Unit Costs.'' In this report the property is described by a statement of the number of miles of the structure located in a given county, which structure includes all of the operating elements that make up a ''typical'' mile of such structure. In the case of railroads, for example, the book cost figure would apply to such things as rails, ties, signal devices, ballast, tunnels, bridges, etc. In the ''Derivation of Unit Costs'' report the book cost of the items and the physical units in which these costs are reported are listed according to the number of the balance sheet account from which they are extracted. Since these accounts are subject to the requirements of the ''uniform system of accounts'' established by the California Public Utilities Commission and federal regulatory agencies, an easy comparison of the costs of companies of the same general type is made possible.

The companies are required to report the costs of these continuous structures on the ''Derivation of Unit Costs'' report rather than on the ''Tangible Property List'' apparently to enable the separate computation of the average unit costs of these various items. Thus, for telephone and telegraph companies the total book cost of all exchange poles (for example) in a given county is divided by the *number* of poles in the county to obtain an average cost figure; and the book cost of all exchange underground cable in the county is divided by the number of miles of exchange underground cable in the county to obtain an average cost figure for this type of property. These average cost figures do not, however, appear to be very significant, for they relate to properties constructed at many different dates and under many different circumstances. Since no further use is apparently made of these average figures for purposes of valuation, the distinction on the reporting forms seems pointless. It would suffice if the number of units in each code area and the total book cost (historical cost) of the continuous structures in these code areas were listed on the ''Tangible Property List,'' and the *totals* used in the computation of total historical cost.[9] It is suggested by the Valuation Division that the derivation of unit costs serves the useful purpose of providing a rough check of the *quantity* of property reported by the company. It would clearly be impossible to send the staff members of the Valuation Division into the field to count telephone poles, measure miles of wire, and count the number of telephone instruments in any county. In large measure it is necessary to take the word of the company in this regard. The total costs of such items as recorded in the company's books can be checked, however. In the determination of unit costs these book costs become the numerator of the fraction, and the quantity of property (in whatever units this might be expressed) becomes the denominator. If, then, it were found that the unit (average) costs were unreasonably high, it might be assumed that this meant that the number of items reported was too low. In view of the limitations of the data, however, this check must be so rough as to be virtually meaningless.

Land items, the historical costs of which are omitted from the ''Tangible Property List,'' are separately reported on the ''Statement of Land Transfers.'' This statement lists all lands purchased or leased or disposed of since the last reporting, along with the historical cost of these items, the dates on which the land was transferred, and other data relevant to the assessment process.

Money is also omitted from the ''Tangible Property List.'' There is clearly no problem of determining the historical or reproduction costs, new or depreciated, for money. Furthermore, as already noted, the quantity of money owned by a company does not enter into the unit value of that company, at least as conceived by the Valuation Division. It is added after the so-called unit or ''system'' value has been determined. For these reasons money is listed separately in the property reports of the companies subject to assessment by the State Board of Equalization. The item appears on the ''Statement of Money and Solvent Credits'' and is located by code areas. The report shows the quantity of coins and currency in the possession of the taxpayer on the lien date.

In the process of determining historical cost new the most useful of the several property reports submitted by the company is certainly the ''Summary Control.'' On the ''Summary Control'' all tangible property within the exterior bounds of California is listed by major categories, together with the total historical cost associated with each category. It is, in effect, a summarization of all of the other reports that list tangible property. Since some of the property within the exterior bounds of California is not subject to property taxation in the State of California, a distinction is made on the ''Summary Control'' between taxable and nontaxable property. Licensed motor vehicles, for example, are not subject to property taxation in California and these must be shown separately. Because of their nontaxable status there is no need to list them by their locations in code areas, so they are reported on the "Summary Control" rather than on the "Tangible Property List." Similarly, property of all types located on land ceded to the Federal Government, such as military reservations and the like, are not subject to property taxation in California. These too are shown separately by types of property on the "Summary Control." Some large companies (the Pacific Gas and Electric, for example) submit extensive reconciliation statements along with the "Summary Control" to show more clearly the difference between "property within the exterior bounds of California" and total property subject to assessment by the State Board of Equalization, and to reconcile these with the company's investment record.

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[8] The listing by code areas is itself an extremely complicated matter, made necessary by the complex pattern of taxing jurisdictions in the State of California. A method has been devised which will permit much of the mechanical operation to be done by tabulating and calculating machines. This method will be briefly explained in the section of the present chapter that deals with the techniques of allocating unit value to taxing jurisdictions.

[9] As indicated above, there must be a listing by code areas to facilitate the allocation of the final unit value to the various taxing jurisdictions. This, of course, is currently done for the *items* of property of the continuous structure variety. It is only the *cost* figures that are omitted from the Tangible Property List and listed separately on the Derivation of Unit Costs.

It is the figures that appear on the "Summary Control" that are transferred to the work sheets of the Valuation Division for the determination of historical cost new. The figures are grouped differently on the work sheets than on the "Summary Control" to facilitate the application of the factors used to determine the other cost evidences. Land, for example, is listed in five categories, viz., "Land in Service"; "Land Held for for Future use"; "Land—Construction Work in Progress"; "Land—Miscellaneous Physical Property" (nonoperating property); and "Leased Land."

Thus in checking back from the final figures for historical cost new, one would go first to the "Summary Control." From the "Summary Control," one would proceed to three other reports submitted by the company. One of these relates to land, the "Statement of Land Transfers"; another relates to the so-called "continuous structures," the "Derivation of Unit Costs"; and the third relates to all other property, the "Tangible Property List." If further checks were necessary one would go directly to the accounts and other records of the company in question or to whatever data have been accumulated as a result of physical examinations of the property by the staff of the Valuation Division.[10]

It is extremely important to recognize that the total figure for historical cost new is obtained merely by the process of *adding up the historical costs of individual items of property.* Since the two pieces of cost evidence that eventually appear from the computations are obtained by a multiplication of the historical cost new figures by the two relevant factors, these, too, are basically obtained by adding up individual items of property. *For this reason, the two cost concepts which the Valuation Division considers to be evidences of value, viz., Historical Cost New Less Depreciation and Reproduction Cost New Less Depreciation, may not be taken to represent the value of the company as an operating unit. The unit rule holds that the value of the whole is not necessarily equal to the sum of the "values" of the individual parts.* Indeed, they may not even be taken to be a total list of the company's tangible property, for they relate only to that property assessable by the State Board of Equalization under California statute.[11]

The Factors for Cost Changes

The determination of the factors that are applied to historical cost new to obtain reproduction cost new requires the use of statistical material that is obtained in part from published studies of cost changes; in part from reports submitted by some of the public utility companies; and in part from special studies and calculations made by the Valuation Division. Some of these sources are listed below.

1. Marshall and Stevens Valuation Service for various types of building and storage tank costs
2. U. S. Department of Commerce, *Survey of Current Business,* for nonferrous metals and products
3. Whitman, Requardt and Associates for all types of gas and electric installations
4. Interstate Commerce Commission for railroad construction indices and building costs
5. Engineering News Record for construction cost indices, labor costs, material costs, etc.
6. Associated Telephone Company and Pacific Telephone and Telegraph Company for materials and installation costs of various types of continuous structures and central office equipment
7. Any other available information, the accuracy of which may be assumed or verified.

When an acceptable index number of cost changes exists, it is used directly by the Valuation Division. When no such index number exists, the division sets about constructing one from all of the available evidence, often carrying the computations back to the basic raw materials with analyses of the prices of labor, copper, steel, and building materials of all types. These cost indices are kept up to date on a *yearly* basis and, at the present time, are constructed with 1940 as the base year. This latter, however, is purely a matter of procedural convenience and does not involve any substantive issues. The results of the computation are rearranged as "factors" rather than as index numbers to facilitate easy reference, and tabulated.

This process of computation is illustrated with purely hypothetical figures in Table II below. In this table, it is assumed that an intensive reproduction cost study is made in 1947, and that the cost index is found to have behaved as represented in column (2). Column (2), in other words, is statistically determined from the seven general sources of information listed above. In this case, column (2) is shown with a base year of 1936 rather than 1940. This was done merely to enable a comparison over a longer period of time without the necessity of going further back than the base year. For purposes of simplification we have abstracted from the probability that the cost index numbers for different *types* of property will behave quite differently over such a period of years, for column (2) assumes that all costs behave in an identical manner. It is, of course, simplified further in that the cost index is assumed to increase by a uniform 10 percentage points per year from 1936 to 1947.

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[10] The Valuation Division has prepared and issued a set of detailed instructions to the public utility taxpayers in the State for the filing of these and other reports and statistical information. This material contains sample returns for the various reports of the various types of utilities. It is entitled *Instructions for Reporting State Assessed Property and Private Cars,* and was adopted by the State Board of Equalization on December 13, 1950.

[11] It will be necessary to return to this important idea when we note the difficulties experienced by the division in adjusting the several evidences of value to make them relate to the same tangible property. It will also be given a place of some importance in the critical evaluation of the techniques of assessment of the Valuation Division.

The historical costs in which the company has been involved each year are shown in column (3) of Table II. This column, too, has been greatly simplified by two assumptions: (1) that the company makes 12 annual investments of an equal money value over the period; and, (2) that there are no retirements to be considered.

Column (4) shows the "factor" that is determined directly from the figures in column (2). The figures in column (4) show by what amounts the historical cost figures of each year must be multiplied to obtain the reproduction cost new of each item *as of 1947*. Thus, the property constructed by the company in 1947 will have the same reproduction cost as the historical cost actually represented: the factor is consequently 100. But the cost index number of 1946 indicates that costs were 10 percentage points lower in 1946 than in 1947 and that it would, therefore, cost more to reproduce this property in the later year than it did cost to produce it in the earlier. This is shown in Table II by the fact that the $1,000 of historical cost for 1946 must be multiplied by 110 to show how much it would cost to reproduce the same item, in a new state, in the year 1947. The same thing is true for those items of property constructed each year back to 1936. The lower the index number for any given past year as compared with the index number of the present year, the higher the factor must be which shows construction costs under present conditions. The results of the computations are shown in column (5).

TABLE II

HYPOTHETICAL COMPUTATION OF REPRODUCTION COST NEW AS OF 1947

Year	*Cost Index Number (base = 1936)*	*Historical Cost per Year*	*Factor*	*Reconstruction Cost per Year*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
1936	100	$1,000	210	$2,100
1937	110	1,000	200	2,000
1938	120	1,000	190	1,900
1939	130	1,000	180	1,800
1940	140	1,000	170	1,700
1941	150	1,000	160	1,600
1942	160	1,000	150	1,500
1943	170	1,000	140	1,400
1944	180	1,000	130	1,300
1945	190	1,000	120	1,200
1946	200	1,000	110	1,100
1947	210	1,000	100	1,000
Totals		$12,000		$18,600

Up to this point in the explanation, it would appear that the Valuation Division could carry out these computations every year. It has already been pointed out that the cost index numbers (column (2)) are kept up to date on a yearly basis. It is true that the company is not now required to report, in any given year, the precise *dates* at which each item of property was added to the utility system. It is also true that any such listing would impossibly complicate the reporting system, both for the company and for the Valuation Division. But it would be reasonably easy to cumulate the reports from some starting point and to require a listing in any given year of the dates of additions and betterments only. This would give the sort of accuracy every year now given only every four or five years when the reproduction cost studies are made. Unfortunately, however, this system is made impossible by the fact of periodic *retirements* of utility property. The retirements themselves are reported, of course, for the year in which they are effective, but there would be no way of knowing when the specific items of property now being retired were originally constructed, and consequently no way of knowing which of the factors in column (4) to apply. The only other alternative would involve the physical examination of the property being retired to enable the discovery of the reproduction cost new directly and without recourse to the "factoring system." This would, of course, be a technique similar to that presently applied to the valuation of the land items. But the retirements of property from a large utility system are so voluminous in any one year that this technique, too, is administratively impossible.

It is, then, the difficulty of accounting for retirements that makes it necessary for the Valuation Division to engage in what it calls a "reproduction cost study" of utility property at periodic intervals. In such a study the dates at which additions were made to the system are determined by a detailed and laborious examination of the records of the company and these are associated with the historical costs of the relevant items of property. The study is clearly not designed to enable the determination of the cost index or the factor for cost changes (for this is determined every year on the basis of other statistical information), *but to enable the determination of the precise manner in which this index or factor should be applied.*

In the years between such intensive cost studies an approximation is obtained by comparing the cost index number for any given year with that which was obtained in the year the last reproduction cost study was made and then applying the result to the total historical cost recorded as of the date of the reproduction cost study. This is one of the most complex steps in the valuation process, and a brief (and entirely hypothetical) illustration may help to simplify the explanation.

Assume, as in Table II, that a thorough reproduction cost study is made in the year 1947, and that the total reproduction cost new of the entire utility plant is found to be $18,600. Assume also that the records of the company show total historical cost new in 1947 to be $12,000 and that this represents investments of $1,000 per year made uniformly over the past 12 years (the first $1,000 investment in 1936 and the last in 1947). With these two pieces of information the "factor" for 1947 is easily determined as 155 percent ($18,600 ÷ $12,000). This means that, in 1947, reproduction cost new is 155 percent of historical cost new as of that year and that reproduction cost new could be found simply by multiplying historical cost new by 1.55.

Assume also (as in Table II) that the cost index of this property, with base year 1936, is at 210 in the year 1947.

Now assume that no reproduction cost study is made in the year 1948, but that it is known that the cost index number has risen from 210 to 225 and that an additional $1,000 has been expended by the company during the year on new equipment. To begin with, the $1,000 of "additions and betterments" may be assumed to represent *both* historical cost new and reproduction cost new for those items of property. (This is most easily understood if it is assumed that the investment is made immediately prior to the assessment date so that there has been no opportunity for cost changes between the actual expenditure and the assessment of the property. If the investment were, in actuality, made closer to the 1947 assessment date than to the 1948 assessment date these techniques would contain an impurity.) The remainder of the property (that in existence at the end of 1947) can be "factored up" to the present by multiplying the 1947 factor by the ratio of the 1948 cost index to the 1947 cost index and then multiplying the approximate 1948 factor so obtained by the total historical cost as of 1947. Thus, the factor for 1948 would be (155)×(225 ÷ 210) = 166 percent. Multiplying 1.66 by $12,000 (historical cost new as of 1947) we would find that the reproduction cost new in 1948 of all the property in existence in 1947 would be $19,920. To this we would add the reproduction cost new (it is also the historical cost new) of property added in 1948 to obtain a final reproduction cost new for the year 1948 of $20,920.

Now assume that during 1949 no reproduction cost study is made, but that it is known that the cost index number has risen still further to 232 and that, as usual, an additional $1,000 has been expended by the company on new equipment. The property in existence in 1947 would now have to be "factored up" an additional year and this could be done, as before, by finding an approximate factor for 1949 and multiplying the historical cost new for 1947 by that factor. The computation would be as follows: (155) × (232 ÷ 210) = 171 percent, and $12,000 multiplied by 1.71 equals $20,520. Next, the additions made during 1948 would have to be "factored up" to 1949 as follows: 232 ÷ 225 = 103 percent (approximately), and $1,000 multiplied by 1.03 equals $1,030. As before, the property added in the assessment year of 1949 would be taken at its historical cost new, or $1,000. For the year 1949 then, the total reproduction cost new would be $20,520 plus $1,030 plus $1,000 equals $22,550. This process would be continued until another reconstruction cost new study was made, at which time the whole thing would be repeated.

The determination of historical cost new and reproduction cost new for the three years is shown in summarized form below. In this representation "A's and B's" stands for additions and betterments made in the given year, and "Other Property" stands for the property in existence in 1947. As in Table II, no account is taken of retirements in this simplified explanation.

1947		
Cost Index = 210 (1936 = 100)		
All Property		
HCN =		$12,000
RCN =		18,600
Factor = RCN/HCN = 155%		
1948		
Cost Index = 225 (1936 = 100)		
A's and B's (1948)		
HCN =	$1,000	
RCN =	1,000	
Other Property		
HCN =	12,000	
RCN = (12,000) × (225/210) × (155) =	19,920	
All Property		
HCN = $1,000 + $12,000 =		$13,000
RCN = $1,000 + $19,920 =		20,920
1949		
Cost Index = 232 (1936 = 100)		
A's and B's (1949)		
HCN =	1,000	
RCN =	1,000	
A's and B's (1948)		
HCN =	1,000	
RCN = ($1,000) × (232/225) =	1,030	
Other Property		
HCN =	12,000	
RCN = ($12,000) × (232/210) × (155)	20,520	
All Property		
HCN = $1,000 + $1,000 + $12,000 =		14,000
RCN = $1,000 + $1,030 + $20,520 =		22,550

As indicated above, the land items owned and used by the company are not part of this computation. For land the "factoring" process is, in reality, a physical appraisal of the individual parcels of land reported by the companies on their "Tangible Property Lists." The so-called "reproduction cost new" of the land is thus really a current market value of the land on the assumption that it would be possible to sell the land without the improvements which it supports. It is, of course, impossible to describe at this point the details of the appraisal techniques by which such values are determined. Suffice it to say that they are concerned with accepted appraisal techniques and involve such things as a consideration of the sales, listings, and expert opinions of comparable properties, and the use of any other data relevant to the property in question.

The Condition Percent

The final step in the determination of the cost evidences is the application of the condition percent to historical cost new and to reproduction cost new to obtain, respectively, historical cost new less depreciation and reproduction cost new less depreciation. The application itself involves no particular problems, for once the condition percent has been determined, the remaining cost figures are obtained by simple multiplication. The difficulties lie in the *determination* of the condition percent.

In the determination of the condition percent of a particular item of property in any given year it is necessary to make use of *four* pieces of evidence. These are as follows:

1. The life span of the property from installation to retirement;

2. The present age of the property;
3. The expected future life of the property; and
4. The precise shape of the depreciation curve.

The expected life span of a particular item of property is determined at the time the property is installed and is based largely upon the past experience of the taxpayer and of other companies with similar items of property. There is obviously a good deal of similarity between the tangible property of one utility company and that of another company of the same general type, and this similarity may reasonably be expected to extend (with some exceptions) to the durability characteristics of the various items of property. Thus, it seems not unrealistic to assume that all railroads must make use of steel rails and wooden ties; that all telephone companies feel obliged to make use of wooden poles; and that all electric utilities find it necessary to make use of copper wire somewhere in their distribution systems. Because of the fact of widespread usage of these types of property, because of the similarity of the conditions of use, and because of the fact that the dates of installation and retirement often differ quite markedly for different companies, a fairly large volume of evidence is available to show the *actual* durability of many types of utility property.

Difficulties do arise, of course, with respect to certain types of property. Some types, for example, are so long-lived that they have no real retirement history. Other types have changed in character so appreciably in recent years, by virtue of new inventions and innovations of one sort or another, that the retirement history of the older types is not applicable to the newer. In still other cases, it is necessary to give especial attention to such things as local weathering conditions and the varying degrees of energy with which maintenance policies are carried out by the various companies. To the extent that these difficulties exist, the process of determining the expected life span of the property in question must be largely one of ''informed guesswork.'' While it may be possible to distinguish between property with a 60-year life and property with a 10-year life, it is clearly impossible, in such cases, to distinguish between property with a 60-year life and property with a 59-year life. But to the extent that these difficulties do *not* exist, an average life span of a particular type of property can be estimated with reasonable accuracy if the evidence is gathered in sufficient quantity.

Since most public utility enterprises find it necessary or desirable to make some financial provision for a replacement of depreciated property (often in the form of periodic additions to depreciation reserve accounts) they are usually concerned with making some estimates of the expected life span of the property when it is installed. The accounting practices which result from these estimates are, of course, subject to the regulations of the California Public Utilities Commission and of various federal regulatory agencies. It is these studies, made by the companies themselves, that constitute the source of the basic data used by the Valuation Division in the computation of the condition percent. Where necessary, these studies are supplemented by references to various engineering handbooks and publications; by information provided by materials manufacturers on the basis of their own testing under laboratory conditions; and by examinations of property in the field by the engineers of the Valuation Division.

The present age of the property is the most easily determined of the several pieces of evidence necessary to the computation of the condition percent. Such information may be obtained by an examination of the records of the company. Where necessary, this information may be supplemented by an examination of the date markers which are attached to many types of utility installations (telephone poles, for example). Since this information is also required for the application of cost factors, it is obtained by the same intensive, although discrete, examination of the company's property described in the previous section. The ''reproduction cost'' study is, in other words, really a ''reproduction cost and depreciation'' study.

It might seem at first sight that the *expected future life* of the property at any time after its installation could be calculated simply by subtracting the present age of the property from its expected life span as of the moment of installation. In the present techniques of the Valuation Division, however, this is not quite the case. It is recognized that many items of property continue to exist in an *almost* fully depreciated state for many years after they have been fully accounted for in reserve accounts and long after their ''normal'' life has ended. Much the same thing is true of the life expectancy tables of human beings. At birth an individual may have a life expectancy of 60 years, as indicated by the average mortality age of the population. When this individual reaches the age of 70 it is not then necessary to insist that, in reality, he has been dead for 10 years, for it is quite possible that individuals of this age have, on the average, an expectancy of five more years. Furthermore, this does not mean that the original average of 60 years was incorrect; it means simply that this *individual* did not correspond precisely to the average experience of the population. An examination of the tables used by the Valuation Division for public utility property shows, for example, that property with a life estimated at 10 years when it was installed has an expectancy of five years even at a present age of six years; and when the property is 13 years old (already three years beyond superannuation) it is recorded as having an expectancy of one year. In the same way, property with an original expected life span of 80 years is recorded as having an expectancy of three more years even at the ripe old age of 124.

The basic data used in the computation of the life expectancy of the property is of the same type as that used in the computation of the life span of the property. It consists of information extracted from the past experience of the company in question and of other companies, adjusted where necessary by the information submitted by the appraisers of the Valuation Division.

It is necessary to consider the *shape of the depreciation curve* only to determine the *rate* at which the property loses its income-creating abilities as it grows older.

In theory, the condition percent is considered to be 100 in the year in which the property was installed and zero at the end of the life of the property (neglecting scrap value). For tax purposes, however (and for other accounting purposes as well), it is necessary to establish the condition percent factor in each of the years between installation and retirement. It may be, for example, that the property loses most of its income-creating powers in the first few years of its life; or it may be that depreciation follows a straight-line path from birth to death; or it may be that the property depreciates slowly at first and more rapidly towards the end of its life. None of these possible patterns may be supported as the ''correct'' depreciation formula, either from the point of view of general depreciation accounting or from the point of view of the assessor.

The formula used by the Valuation Division is an adaptation of that determined in a study made by Robley Winfrey at Iowa State College in 1942.[12] Briefly, this formula involves the assumption that depreciation takes place in the manner suggested by the so-called ''sinking-fund'' technique of depreciation accounting, with the sinking fund accumulating at 5 percent per annum. This, in turn, means that the Valuation Division looks upon each item of property as the source of an income flow that extends from the year of assessment to the end of the life of the property, a flow that changes, of course, as the property depreciates. Since it is further assumed that present income is ''more valuable'' than future income, the technique envisions the determination of the ''present value'' of the item of property by a capitalization of the expected future income from the property. The Valuation Division thus, in effect, equates the present value of an *item* of property with the reproduction cost new less depreciation of that property.

The Complexity of the Cost Evidence Determination

Up to this point in the discussion we have been concerned solely with the process by which the Valuation Division determines the two cost evidences used in the final determination of the unit value. Perhaps the most striking feature of this process is its extreme complexity. In large measure, the complexity is mechanical in character, and is made necessary by the mass of data that must be called upon in these computations. If anything, the above description gives a false sense of simplicity, for it has been necessary to gloss over many of the administrative details and to reserve all of the specific descriptions for later discussion. Some of these details are concerned with the techniques of field appraisal; some are concerned with certain clerical manipulations within the Valuation Division; still others are concerned with the construction of the reports submitted by the public utility enterprises in the State.

It is also important to recognize that the Valuation Division itself has greatly simplified the process of cost determination. There is almost no limit to the complexity that *might* be involved if the Valuation Division held tenaciously to the view that *all* relevant information should be considered every year. As is true in the exercise of all administrative functions, a choice must be made between absolute accuracy (even if there were complete agreement as to the *meaning* of this counsel of perfection) and administrative practicability. In the present case, simplification is introduced by such devices as the concentration upon average behavior rather than the detailed examination of specific behavior; the grouping of similar items of property; and the ''factoring up'' of costs on an approximate basis for the years between more intensive studies. Although these simplifications are substantial in and of themselves, they appear to reduce the complexity merely from extreme to moderate proportions.

The Computation of the Earnings Evidences

It will shortly be apparent that the computation of the several earnings evidences of value is many times simpler than the computation of the several cost evidences of value. An understanding of the theoretical difficulties that surround both the application and the determination of the earnings evidence would not, however, lead one to expect such simplicity. Indeed it would appear that, with the exception of the fact that the same mass of data is not required for the computation of an earnings value as for the computation of a cost ''value,'' the difficulties associated with earnings evidence would be much more severe than those associated with cost evidence. The manner in which these simplifications are introduced by the Valuation Division in its present techniques is described in the explanation which follows:

It was pointed out earlier in this report that any *realized* earnings of the company in question, whether these earnings were realized in the year immediately past or in any prior year or series of years, are relevant to the valuation process only insofar as they may be taken to be indicative of the *future* earnings of the company. In theory, the present value of a utility enterprise is indicated by a capitalization of expected future income, and all past income is ''water under the bridge'' as far as current valuations are concerned. It is clear too that the term ''past income'' as used in this context refers to the income which, because of the fact that it occurs in the current assessment period, is sometimes referred to as ''present income,'' for if the income is reported to stockholders or to the Valuation Division of the State Board of Equalization it must be realized income and is consequently of only indirect relevance to the assessment process.

Despite the fact that the limited significance of realized earnings is recognized by the Valuation Division, all of the observable calculations are based upon earnings which the company has actually experienced rather than upon estimated future earnings. To the extent that the latter enter into the valuation process at all, they are not so much ''computed'' in any empirical way as ''considered'' in a subjective and entirely undocumented way. This consideration of the company's future appears to be relegated to the contemplation of the weighting sheet when all of the more tangible evidences have been inserted, and to the bargaining table when the officials of the company and the Valuation Division gather to iron out differences of opinion. Since the weighting sheet and the figures that appear thereon have been chosen as the starting point for this analysis of the techniques of valuation, the present explanation is concerned solely with the use of realized earnings.

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[12] Winfrey, Robley, "Condition-Percent Tables for Depreciation of Unit and Group Properties," *Iowa State College Bulletin*, No. 156, Ames, Iowa, 1942.

As explained earlier in this chapter, there are four figures on the weighting sheet that represent earnings in the determination of the unit value. More specifically, these four figures represent the following:[13]

(1) The net earnings of the current year capitalized at 5 percent;
(2) The net earnings of the current year capitalized at 5½ percent;
(3) The average net earnings of the current year and the four preceding years capitalized at 5 percent; and
(4) The average net earnings of the current year and the four preceding years capitalized at 5½ percent.

The determination of these four figures requires, in turn, the computation of three other magnitudes, each of which is discussed in order below. These are as follows:

(a) The net income of the current year;
(b) The net income of the four preceding years;
(c) The length of time for which the capitalization rate is to be applied.

Ordinarily, in the determination of an earnings value, it is necessary to compute, by more or less elaborate statistical methods, the rate of interest that will be applied to net earnings in the process of capitalization. In 1951 the Valuation Division avoided the difficulties inherent in such calculations by capitalizing all net earnings first at 5 percent and then at 5½ percent. In 1952 an attempt was made to analyze the financial positions of the companies in the hope that a more accurate interest rate could be determined. This was, however, largely a year of experiment and the processes have not yet been solidified into a definite formula. These practices are briefly discussed in the section below entitled "The Capitalization Rates."

The next step in the process involves the mathematical combination of these four items to obtain a present value for the utility system. The step is a simple one and is described in the section below entitled "The Application of the Capitalization Rates."

Once the present value of the system has been determined, it is the practice of the Valuation Division to make certain adjustments before transferring the data to the weighting sheets. These adjustments account for items which the Valuation Division supposes *are* in the earnings figures but which, from a valuation point of view, *should not be* in the figures; for items which it supposes *are not* in the earnings figures but which *should be* in the figures; and for items of property that are not, according to Federal and State Constitutions, taxable within California. These adjustments are discussed in the section entitled "Adjustment to Capitalized Income."

The Net Income of the Current Year

The Valuation Division does not in any real sense *compute* a net income figure for a company which it assesses. Rather it accepts the figure computed by the company and reported in the Income Statement of the Annual Stockholders' Report. This report is typically made for a calendar year rather than for the taxable year and adjustments have to be made by the Valuation Division to bring the data up to the lien date. This adjustment is made after the unit value has been determined, however, and does not affect the computation of the earnings evidence directly. As mentioned in other contexts, the Stockholders' Report is based upon an accounting system that is prescribed by federal and state regulatory agencies. It is assumed by the Valuation Division that only net *operating* income is relevant to the problem of determining a unit value, and once again the Valuation Division accepts the accounting practice of the company with respect to the allocation of the total net income to the operating and the nonoperating categories.

The net operating income of a public utility enterprise is determined by the following simple arithmetical calculation: Total Operating Revenues minus Total Operating Expenses equals Net Operating Revenues minus Operating Taxes equals Net Operating Income.[14] The total operating revenues consist of the gross returns from all of the utility operations of the enterprise and are usually listed in the Income Statement according to the specific department in which they arise. For gas and electric companies, for example, there is usually a distinction in the Income Statement between the total operating revenues of the gas department and the total operating revenues of the electric department. For telephone companies the distinction is between local service revenues and toll service revenues. In some cases the total operating revenue section includes a negative item to account for uncollectable amounts, while in other cases this item is included as an operating expense. The net results, of course, are the same in either of these two cases.

The section for operating expenses shows some variety with respect to the specific items which it includes as between different types of utility enterprises, although the general character of these accounts is substantially the same. A few of the more important items of operating expense are listed in the two columns below for the Pacific Gas and Electric Company and the Pacific Telephone and Telegraph Company.

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[13] The following capitalization rates were used for all companies in the 1951 valuation but in the 1952 valuation the rates applied to the various companies were different. See Chapter X for a more complete discussion of these rates.

[14] The terminology that appears in the Stockholders' Reports of different companies does, of course, differ somewhat, but the calculation is essentially the same. It is also a fairly common practice for companies to report operating taxes along with other operating expenses rather than to list and deduct them separately. If this practice is followed, net operating revenue and net operating income are, of course, the same thing.

Pacific Gas and Electric Company

- Maintenance and Repairs
- Production Expenses
- Transmission Expenses
- Distribution Expenses
- Customers' Accounting and Collecting Expenses
- Sales Promotion Expenses
- Provision for Depreciation and Amortization
- Administrative and General Expenses
- Pension Plan Expenses

Pacific Telephone and Telegraph Company

- Current Maintenance
- Depreciation Expenses
- Traffic Expenses
- Operating Rents
- General and Miscellaneous Expenses
- Commercial Expenses

The one controversial item in these and in similar lists for other companies is that for depreciation. While there is almost universal agreement that account should be taken of depreciation as an operating expense, there is a marked difference of opinion as to the legitimate technique for determining the magnitude of the allowance. Indeed, it has been said that the problem of determining a proper allowance for depreciation is the most difficult problem of the whole valuation process, whether the valuation is for tax purposes, rate-making purposes, condemnation purposes, or insurance purposes. In spite of the fact that the public utility enterprises in California are faced with certain requirements with respect to their depreciation accounting, the provision for depreciation that appears in the Income Statement is the only item of operating expense that the Valuation Division of the State Board of Equalization does not take for granted. The precise techniques used by the Division are explained in the section below entitled "The Capitalization Rates," but suffice it to say at this point that they consist of a manipulation of the capitalization rate. To pave the way for this treatment, the Valuation Division adds back the depreciation figure that appears as an operating expense in the Income Statement. This is done just prior to the application of the "adjusted" capitalization rate so that the figure that is capitalized is, in reality, net operating income before depreciation. All other operating expenses are treated as they are reported in the income statement.

When total operating expenses (including depreciation) have been computed they are subtracted from total operating revenues to give net operating revenues. It is then necessary to deduct only operating taxes to arrive at a figure for net operating income. The term "operating" implies that the taxes are based upon property (or upon the income from property) that is part of the operating structure of the utility enterprise. It is, however, something of a misnomer in this context, for taxes such as the federal corporation income tax and the state franchise tax are based upon income from all sources and no ready distinction between the operating and the nonoperating categories is possible. In other cases, as with the ad valorem property tax, such a distinction is possible.

A question has sometimes arisen as to the legitimacy of including taxes in general and the federal and state income taxes in particular as deductions from income before capitalization. However, if the problem of determining the value of a utility enterprise is considered to be a problem of determining how much a hypothetical buyer would pay for the enterprise as a unit, and if it is considered to be legitimate to make use of net earnings as an indication of such a magnitude, it is clear that the earnings evidence must be computed net of taxes. Any prospective buyer of the utility property (at least any "rational" buyer) would certainly discount all expected future taxes upon the property along with other operating expenses in the determination of the price he would be willing to pay for the system. The only legitimate question that might be raised beyond this point is that which asks whether such a prospective buyer does in fact expect all future taxes to be the same as the taxes just paid. The implied criticism in this question cannot be refuted, but it should also be pointed out that it applies with equal force to any of the figures in the income statement used in the valuation process and not merely to those concerned with taxes paid.

A more particular question has occasionally arisen as to the logic of including the ad valorem property taxes as deductions from the income before capitalization. This objection is usually based upon a statement of the fact that it is the purpose of the valuation to determine what these ad valorem property taxes will be and upon the supposition that such a deduction would represent a prejudging of the issue. It must be remembered in this as in the previous case, however, that the value of the enterprise on the lien date is influenced by the ad valorem taxes paid in the past year only insofar as the level of such taxes leads a prospective purchaser of the property to expect impositions of a similar type and a similar magnitude in future years. Whether these expectations are proven to be correct or incorrect will depend, in part at least, upon the decision of the tax authority with respect to this year's value. In any case, this question is of no significance for any given valuation, for it is not the *accuracy* of the buyer's expectations but the *existence* and the *nature* of these expectations that count in the assessment process. The existence of the expectations may be assumed for any rational purchaser; the nature of the expectations is implicit in the assumption that past experience indicates future experience.

As indicated above, the item for depreciation that appears in the income statement of the company is added back to the net operating income once the latter has been determined. This means that the *final* income figure shows net operating income before depreciation, and it is to this figure that the capitalization rates are applied.

In its 1952 valuations the Valuation Division introduced other refinements in an attempt to solve some of the problems associated with the income tax items in the income statement. From a valuation point of view, the accounting magnitude for income taxes is, in many ways, as controversial as that for depreciation. At least it is clear that it is not always proper to accept the figure in the income statement at its face value. It is often true, for example, that substantial adjustments must be made by the company in any given year for income taxes paid in some previous year. The adjustments, of course, may take the form of either rebates or additional tax liability. In this light, the accounting figure for income taxes paid in any given year must be considered to be tentative only. This, in turn, means that if the valuation process requires a consideration of *actual* tax liability rather than *tentative* tax liability, the income statement must be interpreted with some flexibility. Some doubt will be cast upon the *purpose* of this treatment in later sections of the present report, but the Valuation Division now considers it desirable to apply techniques to the income tax items that are somewhat similar to those applied to the depreciation item. Basically, this technique involves the computation of net operating income before income taxes as well as before depreciation and a further manipulation of the capitalization rate to account for the income taxes. The nature of the capitalization rate manipulation is discussed in the section below entitled "The Capitalization Rates." At the moment, it is sufficient to say that the results, being based upon the Valuation Division's computations of income tax liability rather than upon the income taxes paid in any given year, will be only coincidentally the same as those obtained by the usual processes. This, too, was in the nature of an experiment in 1952 and, although all of the computations were made, it is not clear just how much weight was given to evidence computed in this way for the 1952 valuation.

The earnings evidence is, then, computed in *two* ways in 1952, the first showing net operating income before depreciation capitalized at a rate which includes a depreciation factor, and the second showing net operating income before depreciation *and before income taxes* capitalized at a rate which includes a depreciation factor *and an income tax factor.* The computation of the latter net income figure involves adding back the figure for depreciation and the figure for income taxes which appear in the income statement. For the income tax adjustment, both federal and state income taxes are taken into consideration. The figure for state income taxes does, of course, apply to *all* states in which the company operates and not merely to California.

The Net Income of the Four Preceding Years

No additional problems arise in the computation of the net income of the company for the four preceding years. In fact, all that is required is the transposition of the net income figures on each of the relevant working sheets for each of the four years to the working sheets of the present year. If any changes are made in the technique of computing the net income figures of the full five-year period, it then becomes necessary to reconcile the figures in some way, since the figures for each year must relate to the same income concept if the five-year average is to be meaningful. No such problems were observed in the examination of the six companies in question, with the exception of those changes made in 1952.

The utilization of these data consists simply of the construction of a five-year average of the figures obtained for net operating income before depreciation (or before depreciation and income taxes) and the application of the capitalization rate to the result. Thus it is apparent, since the averaging takes place before the capitalization rate is applied, that it is an income figure that is averaged over the five years and not a value figure. This conforms to the idea that what is needed is additional evidence of *future earnings* to determine *present value* and that perhaps a potential purchaser would consider the trend of past earnings in the derivation of his estimates of the company's profitability. In the techniques used by the Valuation Division a simple average of five years' earnings is substituted for a five-year trend of earnings because of the ease of computation.

As far as the problem of determining the final unit value is concerned, there is no particular logic to the projection of a trend of *values.* There is no reason why the unit value of a given year should be located on any of the simpler trend lines, even if the earlier values had shown little or no deviation from such a line. For the same reason, there is no particular logic to the *capitalization* of a five-year *average* income figure; it becomes largely a case of losing oneself in one's own calculations. The truly meaningful operation would be one which made use of past earnings, either for one-year or five-year average earnings or both, for estimating future earnings, and then capitalizing the results. This point need not be further developed here, since it is more fully discussed in Chapter XIV below. In any event, it should be recognized that such calculations would be extremely difficult and would perhaps have the additional disadvantage of providing too graphic an illustration of the necessarily tenuous character of the final results.

The Length of Time for which the Capitalization Rate is Applied

Before it is possible to determine a value figure from the computed income data it is necessary to determine the estimated service life of the property in question. In this case, of course, the property in question is all of the operating property, taken as a unit, of any utility enterprise subject to assessment by the State Board of Equalization. It will be recognized that much of the process of estimating the expected future life of the utility's property has already been explained in the description of the derivation of reproduction cost new less depreciation and historical cost new less depreciation. The same data are called upon in this instance. The only difference is that, when the company as a whole is involved in the analysis, the estimated future lives of many different types of properties must be weighted and averaged. It would be a mistake, however, to think that the weighting and averaging is a formalized procedure capable of yielding exact results. Indeed the process is almost entirely subjective, and involves little more than a consideration of the general character of the property of the company as indicated in the reproduction cost study. As explained earlier (in the discussion of the cost evidences), this computation is too detailed to permit it to be carried on every year. As a result, the computation of the expected future life of the *company* has the same periodicity as the computation of the expected future life of the *individual items of property.* In the years between the intensive reproduction cost studies the calculation of the over-all expectancy appears to be even more cursory. It seems to consist of the notation of the previous year's figure, the recognition of the irrefutable fact that the property in existence last year is now a year older, and the consideration of any new property acquired or old property retired during the year. If the intensive, periodic studies yield, at best, a reasonable estimate of the life of the company, the figures reported for this magnitude during the interim years must be considered to be little more than reasonable guesses.

As in most other computations, land is treated differently than other types of property in this computation of the life expectancy of the company as a whole. In the present case, the difference in treatment consists simply of the omission of land from the computations. This is justified in the Valuation Division's conception of the problem by the assumption that land is undepreciable and that even when the power plants and the transmission lines and the telephone poles have fallen to the ground of old age the land which supported them will still be there and available for the production of an income. This is the same thing as saying that, while the ultimate scrap value of other items of property may be considered to be zero, the "scrap value" of land must be considered to be its present value.

If the land items were *entirely* omitted from the earnings evidence the results would, of course, be quite invalid. However, the Valuation Division, recognizing the mathematical difficulties of averaging the finite expectancies of other items of property with the infinite expectancies of the land items, chooses to take account of the latter in the "adjustments" section of its computations rather than in the capitalization process itself. This treatment is explained in the section below entitled "Adjustment to Capitalized Income."

The Capitalization Rates

Of all the problems that arise in the valuation of public utility enterprises as operating systems the most difficult, with the possible exception of the difficulties of accounting for depreciation allowances, is undoubtedly that of determining an appropriate rate of interest for the capitalization of earnings. To be sure, the process of determining the various cost evidence figures presents a more formidable mechanical problem, for it involves a manipulation of masses of data from a multitude of sources. This is certainly not the case with respect to the process of determining a capitalization rate, at least not to anything like the same extent. Indeed, data of an acceptable variety are, in some cases, almost wholly absent. If a major problem of cost analysis is that of surfeit, certainly an important problem of capitalization rate analysis is that of scarcity. Not only are the raw statistics conspicuous by their absence, but acceptable techniques of the interpretation of the statistics have yet to be developed at the theoretical level. But there are more fundamental difficulties to plague the assessor in the determination of an interest rate for capitalization purposes. To begin with, there is anything but complete agreement among professionals as to an appropriate *concept* of a capitalization rate, and even if these important differences of opinion were resolved, there is abundant scope for disagreement on the problem of the sort of data that may be taken as illustrative of the concept. In this respect, it appears that economic theory has left a legacy of poverty to the assessor of public utility property. Many of these difficulties have already been discussed in greater detail in Chapter V. Since the present chapter is concerned solely with the treatment accorded these problems by the Valuation Division, and since these problems are largely "solved" by neglecting them, it is not necessary to dwell upon them at this point.

As explained above, two more or less arbitrary capitalization rates were used by the Valuation Division in its computations of earnings evidence for 1951, and the same rates were used for all companies. These rates were 5 percent and $5\frac{1}{2}$ percent. As mentioned earlier, the Valuation Division made some attempts in 1952 to analyze the financial situations of the various companies it was assessing, and on the basis of these analyses applied basic interest rates which, for some companies, were quite different from those which were applied in 1951. These analyses were, however, more in the nature of "background material" than solid evidence which might be used to prove the validity of a particular rate. This treatment is described later as part of the specific discussions of Chapters X, XI, and XII, and in Appendix B. The Valuation Division is always willing to compute an earnings value on the basis of any other capitalization rate that might be suggested by an interested party if the rate is the subject of controversy with the taxpayer. At this point, however, the capitalization rate becomes a product of the bargaining process rather than of any scientific analysis, and the final choice depends upon the strength of the argument presented by the taxpaying company for a higher rate. It will be shown in a following section dealing with the application of capitalization rates that the results of this bargaining can have marked effects upon the final unit value, for a difference of a fraction of 1 percent in the capitalization rate can produce an extremely large absolute difference in the earnings value when large net incomes and relatively long life expectancies are involved.

The choice of an interest rate that is represented as "the cost of money" is a necessary but not a sufficient step in the determination of a capitalization rate to be applied to the company's net income. It has already been pointed out that the income magnitude that is capitalized is net of all other operating expenses (including taxes in 1951, excluding taxes in 1952) but is gross of the depreciation charges of the current year. It has also been pointed out that the depreciation element is accounted for in the capitalization rate itself.

The method currently used by the Valuation Division is the so-called "sinking-fund" method of depreciation accounting. This method assumes that the company attempts to accumulate a fund that will be sufficient, at the end of the service life of the property, to recover the value of the property (scrap value is assumed to be zero). The method also assumes that the money allocated to the fund each year accumulates at compound interest for the remaining life of the property. Since such allocations are made every year, the resulting series becomes an annuity that earns interest at a rate determined by the assumptions which are made regarding the character of the reinvestment. In the techniques of the Valuation Division it is assumed that the additions to the sinking fund are reinvested in the company itself and it is further assumed, for convenience and for want of evidence to the contrary, that the relevant interest rate is that selected by the Valuation Division as its basic ''cost of money'' rate, either 5 percent or 5½ percent. The rate at which the annuity accumulates will then consist of the equal annual contributions to the sinking fund and the interest earnings at the appropriate rate. The annuity factor may then be added directly to the ''cost of money'' rate to obtain a combined rate that may be used to capitalize the figure for net operating income before depreciation. An example will help to illustrate the process by which this combined rate is determined.

Assume that the ''basic'' rate is considered to be 5 percent. This is the rate that is considered to represent the ''cost of money'' to the company and is the rate that *would* be used to capitalize the net income figure if this net income were computed *after* depreciation. But the Valuation Division capitalizes a net income figure that is computed *before* depreciation and the capitalization rate must consequently be larger by an amount sufficient to account for the depreciation. The Valuation Division further assumes that equal annual amounts are placed in a sinking fund and that this fund earns 5 percent for the remaining life of the property (say 22 years). The only other requirement is that the accumulated sinking fund (annual charges plus interest) must be sufficient to recover the present value of the property at the end of the 22-year period. The amount of an annuity that earns 5 percent interest for 22 years, assuming $1 to be placed in the fund each payment period, is the sum of the geometric progression

$$S_{\overline{n|}} = 1 + (1 + i) + (1 + i)^2 + (1 + i)^3 + \dots + (1 + i)^{n-1} \text{ or } S_{\overline{n|}} = \frac{(1 + i)^{n-1}}{i} \text{ where } i = .05 \text{ and } n = 22 \text{ years.}$$

This can more readily be found, of course, by reference to annuity tables, which show, under these assumptions, that $S_n = 38.5052$. This means that if $1 were invested each year for 22 years at 5 percent interest the accumulated amount at the end of the period would be $38.5052. To convert this figure into a percentage, it is necessary merely to divide 100 by 38.5052. This results in a rate of 2.597 percent, which is the rate at which the sinking fund must accumulate to recover, over the 22-year period, the present value of the property, if the sinking fund earns 5 percent interest. The 2.597 percent is then added to the original 5 percent and the final capitalization rate is 7.597 percent.

The same kind of computation is involved for an interest rate of 5½ percent. In this case the annuity rate is 2.447 percent and the final capitalization rate thus works out to be 7.947 percent.

It is clear that the additional percentage to account for the depreciation element is the result of a simple mathematical calculation. Once it has been decided that the sinking fund shall earn interest at the ''cost of money'' rate, and once it has been decided that the expected future life of the company is *n* years, no new problems of concept are involved. The annuity rate follows naturally from the assumptions made and there is no room for variation. The *total* capitalization rate, being a combination of the annuity rate and the basic ''cost of money'' rate, then appears as the result of an arbitrary decision and a simple mathematical relationship. Thus, with the Valuation Division's present techniques, it can hardly be claimed that the capitalization rate is determined empirically. The determination of the rate consists simply of the requirement that the company ''prove'' to the satisfaction of the Valuation Division why a ''cost of money'' rate of 5¾ percent (for example) is correct when a rate of 5½ percent is incorrect.

The Application of the Capitalization Rates

No troublesome problems are involved in the application of the capitalization rates once they have been determined. It is necessary only to divide the net income before depreciation by the capitalization rate to obtain a figure of capitalized income. The more complicated formula usually used in the capitalization of income need not be invoked in this case since its meaning is already carried in the annuity factor itself.

It is interesting to note the magnitude of the differences in the capitalized income figures that are created by the choice of only slightly different capitalization rates and slightly different expectancies. A series of calculations are recorded below to illustrate these differences. The comparison is based upon the figure for net operating income before depreciation for the Pacific Telephone and Telegraph Company for the calendar year 1950. The first two calculations were made by the Valuation Division in the process of determining the unit value of this company as of the first Monday in March, 1951.[15] The last two calculations were made for the purposes of the present comparison. In 1950 the Pacific Telephone and Telegraph was found to have a net operating income before depreciation of $100,140,295. The Division calculated the estimated future life of the company (that is, the ''expectancy'') at 18 years and proceeded to calculate capitalized income figures on the basis of 5 percent and 5½ percent ''cost of money'' rates. The results of these calculations are as follows:

(1) Expectancy: 18 years
    Capitalization rate: 5.000% + 3.555% annuity = 8.555%
    Capitalized income (rounded to nearest $1,000) = $1,170,547,000

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[15] The figures resulting from these calculations must not, of course, be taken to be the unit value of the company on this date. The earnings evidence used here is only a part of the total unit value determination. Furthermore, the capitalized income figure does not even indicate the earnings evidence, for other adjustments must first be made. These adjustments are discussed in the following section.

(2) Expectancy: 18 years
Capitalization rate: 5.500% + 3.392% annuity = 8.892%
Capitalized income (rounded to nearest $1,000) = $1,126,184,000
This shows that a change in the basic rate of only one-half of 1 percent had the effect of changing the capitalized income figure by more than *44 million dollars.*

(3) Expectancy. 18 years
Capitalization rate: 6.000% + 3.236% annuity = 9.236%
Capitalized income (rounded to nearest $1,000) = $1,084,239,000
This shows that an increase of 1 percent in the basic interest rate (over the original 5 percent rate) lowers the figure for capitalized income by more than *86 million dollars.*

(4) Expectancy: 19 years
Capitalization rate: 5.000% + 3.274% annuity = 8.274%
Capitalized income (rounded to nearest $1,000) = $1,210,301,000
This shows that an increase in the expected future life of the company by only *one year* has the effect of increasing the capitalized income figure by almost *40 million dollars.*

When it is recalled that the Valuation Division chooses the capitalization rates in a more or less arbitrary fashion, and when it is recalled that the life expectancy of the company can be claimed to be little more than a ''reasonable guess,'' it will be understood that the capitalized income figure is a somewhat unreliable piece of evidence. This understanding will be strengthened by a recognition of the fact that the realized net income that is the subject of the capitalization process is but an imperfect indicator of the future income potentialities of the company and that it is the latter rather than the former that is relevant to the valuation process. Furthermore, in view of the fact that the earnings evidence is subject to such wide margins of error, the bargaining process takes on a new significance. Even though the bargaining may take the form of arguments over such particulars as a 5½ percent capitalization rate as opposed to a 5¾ percent rate, or a 20-year life expectancy as opposed to a 21-year life expectancy, one must not be misled into thinking that the results are unimportant. But, on the other hand, it must not be believed that any resulting figure for capitalized income can be *proved,* beyond any reasonable doubt, to be correct or incorrect. It would be extremely difficult to find an expert who would be willing to stake his reputation upon the absolute accuracy of a decision involving a difference of one-fourth of 1 percent in a capitalization rate. It would be even more difficult to find an expert who would be willing to stake his reputation upon the absolute accuracy of a decision involving a difference of only one year in the life expectancy of a large and complex public utility enterprise.

Adjustments to Capitalized Income

Two types of adjustments are made to the capitalized income figures before they are transferred to the weighting sheet as the representatives of earnings in the determination of unit value. The first of these is considered by the Valuation Division to be made necessary by the fact that the income figures omit certain elements of value and include other elements that are not relevant to the valuation process. In some cases these insufficiencies are inherent in the data themselves and in other cases they are the products of the manner in which the Valuation Division chooses to make use of the data. The second type of adjustment is made necessary by the fact that the Federal and State Constitutions and statutes prohibit the property taxation of certain types of property within the State of California. Thus, in any critical examination of these adjustments, the first type may be questioned from the point of view of its theoretical necessity as well as the manner of its execution. But since the second type of adjustment is mandatory as far as the State Board of Equalization is concerned, it can be questioned only from the point of view of the appropriateness of its execution unless one wishes to examine the statutes and the constitutions themselves.

An examination of the manner in which the Valuation Division applies these adjustments to the six companies in our sample shows considerable diversity. Individual companies contain unique problems that call for unique solutions by way of these adjustments. In some cases, moreover, the Valuation Division simply neglects certain of the adjustments, presumably on the grounds of their relative insignificance. Despite this sort of diversity, it seems that, in general, there are four adjustments that fit the first category mentioned above and either one or two adjustments that fit the second category. The first four adjustments are listed on the work sheets of the Valuation Division as follows: Working Capital; Materials and Supplies; Construction Work in Progress; and Land Reversions. The second set of adjustments is designed to account for Licensed Motor Vehicles (and other nontaxable items) and, in the case of an interstate company, for that portion of the company's property located in states other than California. Each of these six adjustments is discussed briefly below.

Working Capital. The concept of working capital is, to say the least, somewhat vague and always involves arbitrary judgment for its quantification. It is most commonly defined in the literature on public utilities in something like the following terms: ''Working capital consists of that capital, above the investment in fixed assets and intangibles, which is necessary for the economical and satisfactory conduct of the enterprise. Working capital * * * does not include the total liquid funds with which the business is conducted. It is not the property which the business *has* * * *. Working capital, rather, is an allowance for the sum which the company *needs to supply from its own funds* for the purpose of enabling it to meet its current obligations as they arise and to operate economically and efficiently."[16] As such, it may clearly consist of such things as cash in the vaults or cash drawers of the company, deposits in the bank, materials and supplies, and perhaps even construction work in progress. The Valuation Division, however, applies the label in a somewhat more restricted sense and only cash and bank deposit items are considered to be working capital. It must be pointed out immediately that not *all* cash and deposits possessed by the company are considered to be working capital, but only that quantity of liquid resources assumed to be necessary for the efficient operation of the company.

Setting aside, for the moment, the techniques by which the magnitude of the working capital adjustment is determined, it might be well to examine the reasons for giving this item a place in the calculation of an earnings value.

To begin with, the working capital adjustment is always a negative item, that is to say that the computed figure for working capital is always subtracted from the capitalized income figures in the process of determining an earnings value. As explained above, the Valuation Division makes use of an income figure that is reported to it by the company in question and that represents *realized* income. It will be recalled, too, that the figure relates only to *operating* income—the income that is assumed to flow from tangible operating property. It is recognized, however, that this income would not have been realized if the company had not maintained a quantity of liquid assets for the purpose of financing its day-to-day operations. Many companies find that their flow of operating expenses is more or less steady throughout the month; on the other hand, at least with public utilities, their flow of income tends to conform to the pattern of the periodic billing of customers and is consequently "lumpy" rather than smooth. The working capital, then, is designed to fill the gap that is likely to exist on any one day between the receipts of that day and the expenditures of that day. If working capital is thus necessary to the operations of the business, it may be said that a portion of the realized income must be associated with the working capital itself. By the same token, the working capital element will be included in the figure for capitalized income. The *deduction* of this working capital from the capitalized income is justified on the grounds that the former does not consist of tangible operating property and that it must be removed to make the earnings evidence fully comparable with the cost evidence and the stock and debt evidence.

The fact that working capital is subtracted from capitalized income does not necessarily mean that the items which come under this heading are not subject to taxation. It has already been shown that money (or a reasonable estimate thereof) is added in *after* the computation of the unit value. To the extent that working capital is assumed to consist of the company's demand deposit accounts, the item is subject to treatment as a solvent credit. Naturally, when either money or solvent credits are under consideration, they are taken at the full amounts possessed by the company and not at any amount which might be considered to be working capital. This implies, of course, that the company may have on hand a greater quantity of liquid resources than is necessary for the efficient operation of the business. While these resources are also subject to the special treatment described above, it is assumed that the company earns no return on the excess; that the realized income figures do not, in any sense, contain a contribution from these excess resources; and that no adjustment need be made for these in the income computations.[17] For all practical purposes, it may be assumed that the working capital (*as this term is used by the Valuation Division*) almost entirely represents the company's demand deposit accounts, for it is inconceivable that a large company would satisfy any but the smallest and simplest of its obligations by payments of legal tender currency. In any event, as long as working capital does not relate to tangible operating property, the specific character of the item makes little difference. *All* money (legal tender currency) is added back later, and *all* demand deposits, because of their solvent credit characteristics, are singled out for special treatment as required by law.

While there are theoretical difficulties involved in this adjustment for working capital, the most important difficulties for purposes of the present discussion are those which are involved in the estimation of an appropriate *magnitude* for the adjustment. This estimate is made almost entirely by rule-of-thumb techniques. At the present time, the amount of liquid resources which the Valuation Division assumes to be necessary for the efficient operation of the business is equal to one month's operating expenses, i.e., the total operating expenses of the year divided by 12. There is little to justify this technique except the fact that it is one which is often used by public utility commissions in their rate base computations and the fact that there exists no more rational technique to replace it.

Materials and Supplies. Almost the same theoretical analysis may be applied to the adjustment for materials and supplies as to the adjustment for working capital mentioned above. In fact, for most purposes, it is suitable to think of materials and supplies as being a *part of* working capital. The two items are treated separately by the Valuation Division because materials and supplies *are* tangible property and are fully assessable by the State Board of Equalization.

It is assumed that a certain quantity of materials and supplies must be kept on hand for the purpose of facilitating the day-to-day operations of the business. As with working capital, it is assumed that the realized income of the company depended in part upon the ready availability of such materials and supplies. It is therefore assumed that part of the realized income must be attributed to these items of property. This portion of materials and supplies is not, however, subtracted from capitalized income as was the comparable figure for working capital. Materials and supplies appear in the cost evidence and, as will be shown later, in the stock and debt evidence as well. If the earnings evidence is to be made comparable to the other evidences, materials and supplies *should* be in the earnings figures. But *all* materials and supplies appear in the cost figures and the stock and debt figures, while, up to this point at least, only *necessary* materials and supplies appear in the income figure. As a result, the division finds it necessary to add to the capitalized income figure the excess of actual over necessary materials and supplies. If the general theory of working capital is correct, it would clearly be invalid simply to add all materials and supplies to the capitalized income figure. In view of the fact that the portion of materials and supplies considered to be necessary is already reflected in the capitalized income figure, this technique would involve double counting.

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[16] Barnes, Irston R., *The Economics of Public Utility Regulation*, F. S. Crofts and Company, New York, 1947, p. 495.

[17] The logic of this treatment will be further discussed in subsequent chapters.

Consider the possibility that a public utility company has been particularly astute in buying certain materials which are essential to its operations and which it expects to be scarce in the near future. If this information is generally known in the investment community, it will, no doubt, be reflected in the market prices of the stocks and bonds, for this company will, because of the character of its stockpile, be a more favorable investment. It is certain also that these materials and supplies would appear in the cost figures, for these cost figures are, in theory at least, computed by an exhaustive inventory of all of the company's property. Similarly, this stockpile of materials and supplies would have to be mirrored in any figures that represented expected future earnings. This information will not, however, be carried in any figures for *realized* earnings, for in the years in which this income was realized this portion of materials and supplies was not necessary for the operations of the business. It is therefore necessary to take account of these items by some evaluation of the earnings that will arise in the future as a result of the stockpiling of these potentially scarce materials. This is the justification for the adjustment for materials and supplies. It is also interesting to note that the adjustment highlights the broader problem of adjusting *actual* earnings to make them conform to *expected* earnings.

The Valuation Division also indicates, on the work sheet form used for these purposes, a willingness to make negative adjustments as well as the positive adjustments described in the last two paragraphs. By parallel logic, this would presumably mean either that the company was maintaining inventories of materials and supplies that were lower than necessary or that the Valuation Division's calculations of the *necessary* level showed an upward bias. If the former were true, it seems that the term ''necessary'' would have to be given new meaning, for the mere fact that a net income was realized is an indication that no larger stocks of materials and supplies were absolutely necessary for the operation of the business. If the latter were true, the desirability of a re-estimation of the amount of materials and supplies considered to be necessary would clearly be indicated, rather than a negative adjustment to capitalized income. In the past few years, however, no such negative adjustments for materials and supplies have been made, so that the question is largely an academic one. Nevertheless, it does indicate the point of view which is held with respect to the whole problem of working capital and somewhat clarifies the problems that are likely to arise in this area.

The computation of the adjustment for materials and supplies is somewhat different from that for working capital although it, too, is a rule-of-thumb solution. The Valuation Division considers that from 2 to 4 percent of invested capital is an appropriate amount of materials and supplies for the company to carry. This is the portion, then, that is assumed to be automatically included in the capitalized income figure. The adjustment consists simply in adding (or subtracting) the difference between this figure and the actual materials and supplies possessed by the company to the capitalized income figure.

Construction Work in Progress. Construction work in progress is treated in precisely the same fashion as materials and supplies in the section for adjustments to capitalized income. A figure to represent *necessary* construction work in progress is first computed and if the actual construction work in progress is greater than the necessary amount the difference becomes a positive adjustment. By the same token, if the actual figure is less than the necessary amount the difference becomes a negative adjustment.

It is, perhaps, a little more difficult to rationalize the character of this adjustment than that of those already discussed. Certainly it is clear that realized income figures do not contain earnings from property still under construction, unless the property was, in some sense, ''partially'' completed (in which case the completed portion probably should not be labeled construction work in progress in the first place). It is also clear that the potential earnings of property currently under construction are important for purposes of present valuation. But it is difficult to understand why the past earnings of the company depended upon the fact that some construction work was underway at the time. Why, in other words, is there such a concept as a volume of construction work in progress that is *necessary* for the operations of the business? It would seem that *all* construction work in progress should be added to capitalized income and not merely that portion in excess of the ''necessary'' amount. This sort of adjustment could, as before, be justified on the grounds that it helps to bring the realized earnings and the expected earnings of the company into closer correspondence.

Land Reversions. The adjustment for land reversions is somewhat more complicated than the adjustments discussed up to this point. The need for this adjustment arises from the method adopted by the Valuation Division for computing the expected future life of the company for purposes of applying the capitalization rate. It will be recalled that the application of the annuity rate in effect retires all property at the end of the life expectancy of the company. This expectancy, however, was computed exclusive of land items. It is assumed that land will remain in a productive form even after all other property has been used up in the act of producing utility services. Land is, in other words, assumed to be undepreciable. It is the omission of land in the computation of the life expectancy of the company that now justifies a positive adjustment to the capitalized income figure.

It is assumed, for purposes of this adjustment, that the value of the land when all other property is retired will be the same as the value of the land at the present time (obtained by direct appraisal as described in those sections dealing with cost determination). If it is found that the total land owned and used by a utility enterprise in 1950 is appraised at $50,000, and that the life expectancy of the company (exclusive of land) is 20 years, in 1970 the land will still have a value of $50,000. If the present owners of the utility were to sell the land in 1970, it is assumed that they would be able to obtain $50,000 for it. In the meantime, of course, the land will, in conjunction with all other items of property, be earning an income. This income, it is supposed, is represented in the realized income figures and consequently in the capitalized income figures. All that remains is to take account of the fact that the land will still be worth $50,000 even after it has made its contributions to income for the 20-year period. This is done simply by discounting the $50,000 for 20 years at the usual rates of 5 percent and 5½ percent. The result is the adjustment for land reversions, and the adjustment is always added to the capitalized income figure. The Valuation Division did not make this adjustment for land reversions in all cases in the 1951 valuation, although the work sheets provided for it. In the 1952 valuations, however, the adjustment was made in the manner suggested.

Adjustment for Property Not in California. It is customary for the Valuation Division to total the four adjustments discussed above and to subtract the total from the figures for capitalized income. The result is labeled "system value including motor vehicles." Two further adjustments are made necessary by constitutional and statutory provisions. The first of these is designed to account for that portion of the property of an interstate company that is located beyond the exterior boundaries of the State of California. All of the income calculations described so far are based upon the consolidated income statement of the company and, as a result, lead to a "*system* value." The adjustment consists simply of the determination of the percentage of this system value that may be subject to taxation within California. Since the cost evidence was computed on the basis of the property in California only, the adjustment to capitalized income also has the effect of making the earnings evidence correspond more closely with the cost evidence.

The problem of allocating the earnings value of interstate property to the several states in which such property is located has already been discussed in Chapter VIII. It was there pointed out that no completely satisfactory allocation formula exists. Indeed, it was suggested that the adoption of the unit rule of assessment carries with it the implication that any such fractionalization of the unit value must be largely arbitrary. Although allocation of the unit value to the several taxing states thus defies the application of a rigorous test of logic, it can be made to conform to the requirements of the law and to certain demands of convenience. In this sense, it was found that there is some justifiable preference for the use of an allocation formula that contains *several* criteria as opposed to one that stands or falls on the strength of a *single* criterion. In part, of course, this preference for a complex allocation formula is based upon the rather vague hope that any bias introduced by one of the allocating factors might be offset by an opposite bias introduced by another of the factors.

The present policy of the Valuation Division employs allocation formulae that consist of several variables. Beyond this statement, however, generalization is difficult, for these variables naturally differ quite markedly for different types of utility enterprises. For telephone companies it is the practice to consider such things as the number of telephone stations and the number of conductor miles. For railroads, however, such things as ton-miles of traffic, passenger-miles, and length of track are considered. An attempt is made to include book costs of physical property, total operating revenues, and net operating revenues in all cases.

The allocation formula applied to the Pacific Telephone and Telegraph Company in 1951 included five factors. These are listed below:

1. Book Cost of physical property (excluding money) as of December 31, 1950;
2. Total company stations as of December 31, 1950;
3. Total conductor miles as of December 31, 1950;
4. Total operating revenues for the year 1950; and
5. Net operating income for the year 1950.

The total for each of these factors was listed, first for the entire company, and then for California only. The total for the company was then divided by the "California only" figures to obtain the percentage of each of the factors that could be attributed to California. Then each of the five percentage figures was multiplied by an "appropriate" weight. Book costs were given a weight of 20 percent, stations were given a weight of 10 percent, conductor miles were given a weight of 20 percent, total operating revenues were given a weight of 10 percent, and net operating income was given a weight of 40 percent. The weighted percentages were finally added and a figure of 75.9017 percent was obtained as the percentage of system value that could be attributed to California. The figure labeled "System Value Including Motor Vehicles" was then simply multiplied by this percentage and the result was labeled "California Portion Including Motor Vehicles."

It must be repeated that, while the general procedures applied to other companies are similar to those applied to the Pacific Telephone and Telegraph Company, the specific allocation factors are quite different. The figures that are used in the five allocation factors noted above are reported to the Valuation Division by the company in the various property reports which the latter is required to submit. The allocation of the cost factor and of the two physical property factors (stations and conductor miles) as between the company as a whole and the California portion involve relatively few problems. Total operating revenues can also be fairly easily allocated by the company. The same easy allocation does not, however, attach to the net operating income factor, for it is often very difficult indeed to determine that portion of total costs that should be allocated to a given state. In this the Valuation Division accepts the figures of the company on the assumption that these are more or less carefully regulated by the California Public Utilities Commission and by the relevant federal regulatory agency. The weighting factors are not determined by any scientific analysis, but rather on the basis of a rule-of-thumb and general practice. In any event, in the Pacific Telephone and Telegraph case the difference between the highest and the lowest percentage figures was a matter of only a few percentage points. The use of an unweighted average would not have produced greatly different results, for the figure would have been 76.0608 percent instead of the 75.9017 percent actually used.

Adjustment for Motor Vehicles. This adjustment is necessitated by the provisions of the Vehicle License Fee Law, Section 10758 of the California Revenue and Taxation Code, which states that ''The license fee imposed under this part is in lieu of all taxes according to value levied for State or local purposes on vehicles of a type subject to registration under the Vehicle Code whether or not the vehicles are registered under the Vehicle Code.'' In fact, however, the adjustment made at this point includes items other than motor vehicles, the most important of which is property within the exterior boundaries of California but located on lands ceded to the United States Government. The adjustment is a simple one and consists of the computation of the ratio of the historical costs of the licensed motor vehicles and other nontaxable property to the total historical costs of all of the company's California property as of December 31st, the subtraction of this percentage from 100, and the application of the percentage so obtained to the figure labeled ''California Portion Including Motor Vehicles.'' It is thus assumed that the ratio of the *historical costs* of nontaxable property to the *historical costs* of total property within the State is the same as the ratio of the *value* of nontaxable property to the *value* of total property within the State.

The figure obtained as a result of this adjustment is called ''California Portion Excluding Motor Vehicles'' and is the final capitalized income figure that is transferred to the weighting sheet as the representative of earnings in the determination of the unit value.

The Computation of the Stock and Debt Evidences

Of the three major types of value evidence currently used by the Valuation Division the stock and debt evidence is undoubtedly the most straightforward and the most manageable. Special problems do arise in the use of stock and debt evidence to be sure, and in some cases these problems are so baffling and resist even theoretical solution so effectively that the value of the evidence must be greatly depreciated. Such problems commonly arise in valuing a company that is a wholly or a partially owned subsidiary of another corporation, or in valuing a company whose stock is closely held and rarely offered for sale in the market, or (according to the Valuation Division) in valuing a company whose stock has been subject to violent speculative activity in the market. But in those cases where such difficulties are absent, or where it is possible to adjust for peculiarities, the stock and debt evidence may be constructed with relative ease and used with some confidence. Of course, even in the least complicated situations the stock and debt evidence may not be taken to be a valuation panacea, for it is always subject to the difficulty of valuing the corporate entity from data describing the prices of relatively small blocks of securities. But when the stock and debt evidence is at its best, it is justified, if not on its own merits, at least by the default of the other evidences of value. The cost evidences are clearly subject to the fundamental objection that the value of the whole need not even remotely resemble the sum of the ''values'' of the individual parts. And the earnings evidence, while having the appearance of precision, is in truth speculative in the extreme, involving forecasts of future receipts and future costs, an estimation of the future life of the present property, and a pursuit of the elusive capitalization rate.

However, it is not the purpose of this section to describe the proper role of the stock and debt evidence in unit valuation. This, in part, was done in the theoretical discussions of Chapter VI, and will be further treated in the critical remarks and suggestions which follow. This section is concerned only with the manner in which stock and debt evidence is developed by the Valuation Division.

To fulfill this purpose it is necessary to recall that this type of evidence is designed to indicate the opinions and the judgments of those individuals and institutions who are the legal owners of the corporation or who have claims of any kind against the assets of the corporation. It is assumed, of course, that these opinions and judgments are reflected in the market prices which the buyers of the company's issues have paid and in the yields they insist upon receiving in any debt contracts with the company.

Approaching the matter from the point of view of the company's balance sheet, it becomes necessary to analyze all of the liabilities which represent the debts of the company (including its capital debts) but excluding those liabilities which represent merely the accounting practices of the company. By and large, this means a consideration of all of the various types of outstanding capital stock; all of the funded debt; and all of the current and accrued liabilities. The excluded items would consist, in part, of the various reserve accounts such as those for depreciation, insurance, and the like and the several surplus accounts. In theory, of course, the *figures* which appear in the included accounts are not important, for it is market data and not the accounting practices of the corporation which are relevant to the stock and debt evidence. As will be shown later, however, it is sometimes necessary for the Valuation Division to consider only the amount that appears in the appropriate accounts, since, in some cases, market data are totally absent.

To the extent that market prices do enter into the construction of the stock and debt evidence, the evidence itself must be taken to represent the value of the corporation as such and not merely the value of the operating property of the corporation. When rational investors purchase the stock of a corporation, for example, it must be supposed that they do so on the basis of their estimations of the returns to be expected from all of the assets and that they are only indirectly concerned with breaking the returns down into the operating and the nonoperating categories. For the same reason, the stock and debt evidence does not automatically distinguish between the value of taxable property and the value of nontaxable property. In this sense it may be said that the stock and debt evidence is the most inclusive of the three major types of value evidence so far presented. But in the present context this very inclusiveness is a limitation, because it requires the Valuation Division to adjust the data to conform to its expressed purpose of determining the "unit" value of only the operating property and to make the evidence correspond with the other evidences of value. These adjustments are similar (but not identical) in character to those applied to the capitalized income figures.

There are, then, three major steps in the construction of the stock and debt evidence. The first involves the selection of those balance sheet accounts which should be represented in the evidence; the second involves the use of market data for the determination of the dollar amounts which will be attributed to each of these accounts; and the third involves the adjustment of the figures in such a way as to make them comparable to the other value evidences.

Value Based on Sales

The first section on the work sheets of the Valuation Division carries the descriptive label of "Value Based on Sales" and it includes those liabilities of the company which, for present purposes, are most important, viz., the capital stock group and the long-term funded debt group. The various issues in each of these groups are listed specifically as "Common Stock," "Preferred Stock," "Forty Year 2 and ¾ Debentures due December 1, 1975," and so on. The first figures placed against these items are taken from the Balance Sheet of the Annual Stockholders' Report or from the financial reports which the taxpayer is required to make to the State Board of Equalization. For the capital stock group they indicate the total *number* of shares outstanding for each type (the total dollar amount of shares outstanding divided by the par value per share). For the funded debt group they indicate the total amount (outstanding) in dollar terms at par value. All of these figures are reported, as least for most of the companies, as of December 31st.

The next step involves the calculation of the market prices of the various issues. To the extent that the data permit, this is done for each issue by determining the average of the monthly high and low prices for the calendar year. This information is usually obtained from published reports of security prices which appear in the financial journals and the financial sections of newspapers. For example, a high selling price and a low selling price of common stock is determined for the month of January, a high and a low for February, and so on throughout the year. These highs and lows for the whole year are then totaled and divided by 24 to give the simple average of the monthly high and low prices of common stock for that year. Similar averages are computed for preferred stock, debentures, and bonds of all types. These several average figures are then multiplied by the number of shares outstanding (in the case of the capital stock group) or by the par value of the entire issue (in the case of the funded debt group). The resultant figures are computed values, based upon sales experience, for each of the capital issues. The sum of all of these computed values is the figure labeled "Value Based on Sales."

Value Based on Books

Because of the fact that no organized market exists for a great many of the items which must enter into the computation of the stock and debt evidence, the Valuation Division is forced to rely upon book figures. For the most part, these items are those which appear on the balance sheet of the company as "Current and Accrued Liabilities." Although these are listed only by total amount in the work sheets of the Valuation Division, they are, of course, broken down on the balance sheet into such things as notes payable, accounts payable, advance billing for service and customers' deposits, accrued taxes, accrued interest, accrued dividends on preferred stock, and so on. It is clear that all of these items represent legal claims against the assets of the company and that they should, consequently, be part of a stock and debt valuation. It is unfortunate, although necessary, that they should be taken at the figures indicated in the books of the company. However, it is perhaps not as important a problem in the case of public utility valuation as it would be in the case of the valuation of some other types of enterprises, for the balance sheet of a public utility ordinarily shows relatively little financing through these devices.

The only other item which appears in this section of the Valuation Division's work sheets is one labeled "Deferred Credits." This refers to a company account called "Other Deferred Credits," in which are placed various items as required by the uniform system of accounts of the appropriate regulatory agency. The specific entries in this account differ, of course, according to the type of utility involved and according to the circumstances. In 1950 for example, the following items were included in the "Other Deferred Credits" account for the Pacific Telephone and Telegraph Company:

Reserve for depreciation of miscellaneous physical property;

- Deposits of house movers, etc.;
- Estimated cost of removal of toll lead in Oregon replaced by coaxial cable:
- Deferred directory advertising revenue; and
- Minor items, nine in number, each less than $5,000.

The Valuation Division assumes that some of these items are legitimately included in the stock and debt valuation and that others are not. However, no specific distinction by items is made. Rather, an arbitrary figure of 25 percent of the balance sheet figure is taken and included as the ''Deferred Credits'' item on the work sheets. In any event, the amount of this item, whether taken at its full book figure or at only 25 percent of that figure, is relatively small and makes little difference to the final value.

Assets to Be Subtracted From Debts

The sum of the two figures determined in the above calculations, i.e., the one for ''Value Based on Sales'' and the other for ''Value Based on Books,'' is probably the closest thing in the records of the Valuation Division to a true *system* or *unit* value of the company as a whole. As indicated above, however, the Valuation Division considers the unit value to refer to operating property only. Consequently, the total debt value is reduced by the subtraction of certain assets which represent nonoperating property. It is true that many of these assets also represent solvent credits and are therefore subject to separate treatment under the law. But as far as the techniques now under discussion are concerned, the explanation for the subtraction must be in terms of the nonoperating character of the assets and the particular concept of the ''unit'' which is subject to unit valuation. Thus, in the Valuation Division's techniques, these subtractions are made *before* the determination of a figure which can be labeled ''system value.'' But they might just as readily be considered to be adjustments made *after* the unit value has been determined. On the work sheets of the Valuation Division these items are called ''Assets to Be Subtracted From Debts'' and are sometimes further divided into the ''Value Based on Sales'' and the ''Value Based on Books'' categories.

The first item to be considered under this general heading, at least for many of the larger utilities, is that which indicates the ownership of securities of other, perhaps subsidiary, companies by the company in question. Wherever possible these securities are taken at their market values. However, because of the nature of the parent-subsidiary relationship, it is often the case that these securities are rarely marketed and in some cases are not even listed on the stock exchanges. As a result, it is usually necessary to consider these items at the figures carried for them in the books of the holding corporation.

All of the current assets (with one exception) and prepaid accounts are included in the assets to be deducted from debts. As with the comparable items on the liabilities side of the balance sheet, these are always taken at their book figures. Current assets, of course, include such items as cash, various deposit accounts, working funds, accounts receivable, and materials and supplies. The materials and supplies are, however, considered to be part of the operating property and are consequently *not* subtracted from debts with the other current assets. Prepaid accounts include such things as rents, taxes, etc., which have been paid but which are applicable to the period after the close of the accounting period.

The only other item which typically appears in these deductions is the counterpart of the Deferred Credits item mentioned above, in this case called ''Deferred Charges.'' The ''Other Deferred Charges'' account from which this item is taken is, once again, subject to the special accounting regulations of the Public Utilities Commission. In this case, too, the character of the account is most easily explained by illustration. For the Pacific Telephone and Telegraph Company (Account Number 139) it included in 1950 such items as the following:

- Preliminary engineering expense not yet apportioned;
- Deposits and payments in connection with contemplated purchase of real estate;
- Costs in connection with securing right of way, Merced, California;
- Plant supervision expense not yet apportioned;
- Estimated ad valorem taxes to be capitalized in 1951; and
- Estimated amount of joint pole interest purchase commitments.

The Valuation Division makes the same assumptions about the Deferred Charges as about the Deferred Credits except that, while the latter are taken at an arbitrary 25 percent, the former are taken at an arbitrary 40 percent. In both cases, however, the magnitudes involved are small relative to the total valuation.

When all of these items have been subtracted from the total debt figure, the remainder is labeled ''Stock and Debt Value Including Motor Vehicles.''

Adjustments to Stock and Debt Value

As with capitalized income, certain adjustments are made to the stock and debt figures before they are transferred to the weighting sheet. It will be recalled that the first four adjustments to capitalized income were designed to take account of working capital, materials and supplies, construction work in progress, and land reversions. It is clearly not necessary to adjust the stock and debt figures for these items, however, for it is assumed that all of these things are taken into consideration by the investors in the company's securities and that they are consequently reflected in the market prices of these securities. All of the adjustments which are applied to the stock and debt figures are designed to account for that portion of the property of the company which is not taxable within California.

Adjustment for Property Not in California. This first adjustment is of exactly the same character and is made for exactly the same purpose as that applied to capitalized income. It applies only to those companies whose property is interstate in its location and its purpose is the exclusion of that property which is located beyond the exterior boundaries of the State of California. It will be recalled that, for the capitalized income adjustment, a percentage figure was computed with the use of a formula which differed for different types of utilities, i.e., a formula which indicated the percentage of the total capitalized income which could be attributed to California property. This computation is made only once per year. The same percentage figure is applied to the stock and debt value to indicate the percentage of *this* value which may be allocated to California. The resulting figure, after this adjustment has been made, is labeled "California Share Including Motor Vehicles."

Adjustment for Motor Vehicles. In almost all respects this adjustment, too, is identical to that made to the capitalized income figures at a comparable point in the calculations. It is designed to account for all other types of nontaxable property as well as licensed motor vehicles. It is computed, as before, by determining the ratio of the historical costs of the taxable items to the historical costs of the total property within the exterior boundaries of California.

There is, however, one item for which an adjustment must be made in the stock and debt case but not in the capitalized income case. The company may have purchased materials and supplies or equipment of one type or another from a supplier in some state other than California. It may also happen that this equipment has not arrived in California by the lien date. Because of the latter fact, the property is clearly not available for taxation in California in that year. Nevertheless, it is assumed that the stock and debt figures do reflect these purchases, and that a negative adjustment must consequently be made to the stock and debt value. Since the property has not even arrived at its destination, much less acquired a place in the operating utility system, it is clearly *not* represented in the earnings of the company and no comparable adjustment need be made to the capitalized income figures. This type of property is, of course, similar to those items labeled "Construction Work in Progress" with the exception of the fact that Construction Work in Progress represents property already within the boundaries of California and is fully taxable, while the property under present discussion is beyond the boundaries of California and is nontaxable. As a result of the need for including these items as adjustments to the stock and debt value but not to the capitalized income value, the percentage figure applied to the former is smaller than that applied to the latter whenever such purchases have been made.

After all of these adjustment percentages have been applied, the resulting figure is labeled "California Share Excluding Motor Vehicles." It is this figure which is carried to the weighting sheet as the one-year stock and debt evidence.

Stock and Debt Value—Five-year Average

No peculiar difficulties arise in the computation of the five-year average stock and debt figures. The average is computed before any of the adjustments are made. The computation consists simply of adding the figures that represent "Stock and Debt Value Including Motor Vehicles" (and before the determination of California's share) for the current year and the four preceding years and dividing this total by five. Then the appropriate adjustments are made by applying the same percentages to the five-year average figure as to the current-year figure.

Other Matters Pertaining to Public Utility Assessment

The foregoing discussion has been concerned with the techniques which are currently used by the Valuation Division in the determination of the unit value of the operating properties of public utility enterprises subject to assessment by the California State Board of Equalization. It was stated in the introductory remarks to this chapter that the explanation would be simplified and, because of this simplification, somewhat inexact in certain particulars. Although, in retrospect, the explanation undoubtedly has an appearance of detail and complexity, it is nevertheless claimed that the introductory promise has been fulfilled. Particular companies have been discussed only insofar as this was necessary for the illustration of important processes. A great mass of computational detail has been completely omitted. No special reference has been made to the assessment of public utility properties which do not fit the major categories of companies selected for our sample. Other troublesome problems, such as the assessment of subsidiary companies and mutual companies, have been largely ignored. The techniques of physical examination and appraisal by the staff members of the Valuation Division have been treated in only the most cursory fashion. In spite of these omissions and abbreviations, however, it is hoped that the explanation presents a sufficiently complete description to enable it to serve as the basis of a judgment of the valuation processes.

Several other points have been treated only lightly in the present chapter, and it is necessary to add a few brief comments to fill in the gaps of essential information. Some of these relate to special provisions of the California Constitution and others relate to general techniques used by the Valuation Division.

Solvent Credits

Three sections of the Revenue and Taxation Code are instrumental in defining the character of solvent credits. Section 113 defines these directly as "all credits except notes, bonds, and debentures." The term "credits," in turn, is defined in Section 112 as:

> "* * * solvent debts owing to the assessee, and any interest therein, unsecured by mortgage, trust deed, contract or other obligation where land is pledged as security.
>
> "It includes contracts for the sale of personal property by which title is vested in the vendor until payment of the purchase price specified in the contracts."

The definition of solvent credits is completed with the definition of the term "debts" in Section 114:

> "'Debts' means unsecured liabilities of the same class as is subject to taxation owing by the assessee to bona fide residents of this State, or to persons doing business in this State."

It is further provided, in Article XIII, Section 14 of the California Constitution, that:

> "The total tax imposed on notes, debentures, shares of capital stock, bonds, solvent credits, deeds of trust, mortgages and any legal or equitable interest therein in pursuance of the provisions of this section shall not be at a rate in excess of four-tenths of 1 percent of the actual value of such property and no tax burden shall be imposed upon any personal property either tangible or intangible which shall exceed the tax burden on real property in the same taxing jurisdiction in proportion to the actual value of such property."

This constitutional provision is implemented by Sections 212 and 2155 of the Revenue and Taxation Code. Section 212 specifically *exempts* all of the items listed in the constitution *except* solvent credits:

> "Notes, debentures, shares of capital stock, bonds, deeds of trust, mortgages, and any interest in such property are exempt from taxation."

Section 2153 indicates the treatment which shall be accorded the solvent credits group:

> "A tax of one-tenth of 1 percent is hereby levied on the actual value of solvent credits and any interest therein.
>
> "The tax on intangibles imposed in this section shall be assessed, equalized, levied, and collected like other county taxes, except as otherwise specifically provided, and is in lieu of all other property taxes on intangibles."

These constitutional and code provisions clearly necessitate the exclusion of those items listed in Section 212 of the Revenue and Taxation Code and the separate listing of solvent credits, since the former are exempt from property taxation and the latter are taxable at a special rate. Since all of these items would normally be represented in the stock and debt valuation of a corporation, they must be specifically excluded by the adjustments discussed above. It will be recalled that these adjustments took the form of deductions of such things as the stock of other corporations in the hands of the assessee, and the notes and accounts receivable listed in the balance sheet. All bank deposits are excluded, demand deposits because they are classed as solvent credits, and savings bank deposits because of the special provisions of Section 1057 of the Revenue and Taxation Code.[18]

They are automatically excluded from the earnings evidence because of the fact that it is only *operating* income which is subject to capitalization. They are excluded from the cost evidences by the simple device of not listing them with the other items of property. How the Valuation Division places a value upon solvent credits is not of importance here. It is only important to note that these items are not included in the unit value of the operating property as finally determined on the weighting sheets.

Franchise Value

> Article XIII, Section 14 of the California Constitution states that " * * * all property, *other than franchises,* owned or used by [the several types of utilities] shall be assessed annually by the State Board of Equalization * * *." (Italics added.)

Once again, the nature of the tax levied upon the corporate franchise is not important but the fact that the value of this franchise must be excluded from the unit value of the public utility enterprise is of some concern. As far as the computation of the unit value is concerned, it would seem that the treatment of the corporate franchise would have to be similar to the treatment of solvent credits. This, however, does not appear to be the case. In the examination of the Valuation Division's techniques no specific exclusion of the franchise value was detected. Although this value *per se* does not appear on the rolls which the State Board of Equalization transmits to the counties, it must be supposed that the franchise *is* represented in the unit value and that it is, therefore, represented in each of the property items which appears on the rolls and which is derived by an allocation of the unit value. It must then be concluded that the letter of the requirements of Article XIII, Section 14 of the Constitution is not being fulfilled. It is difficult, however, to criticise the Valuation Division in this respect, for criticism presupposes that alternatve instructions may be offered. The problem of franchise valuation has been the subject of much discussion, but the discussion has never been able to support any such instructions. It seems that the most logical position is that which holds "franchise value" to be virtually synonymous with "unit value," although if such an interpretation were forced upon the Valuation Division, it would clearly result in the defeat of the spirit of this section of the Constitution.

Leased Property

Article XIII, Section 14 of the Constitution presents one other peculiarity, at least insofar as the companies in the present sample are concerned. This is contained in the requirement that the State Board of Equalization shall assess "all property * * * *owned or used by*" the several categories of utilities. (Italics added.) This, of course, means that if a public utility leases land or buildings from some nonutility owner, the property in question shall be assessed to the public utility rather than to the owner of the property. This, in turn, means that such property will appear as state-assessed property, rather than as property assessed by the local assessors. In general, it may be said that the Valuation Division values such properties by examining the lease arrangements as these are reported by the lessee. The total value of leased properties is not considered to be part of the unit value, but is added to the unit value as a separate item.

The Valuation Division sometimes feels obliged to make arbitrary judgments in administering these provisions. For example, in cases where very small plots of land have been leased out of a much larger parcel of farm property, when the former is completely surrounded by the latter, the Valuation Division sometimes chooses not to assess the leased property. This, of course, does not mean that the property is not taxed, but merely that it is assessed by the local assessor rather than by the State Board of Equalization. This seems to be an example of a necessary administrative flexibility. In any case, it typically involves very small amounts of assessed value. In those cases where one public utility leases property from another public utility, when both companies are assessed by the State Board of Equalization, the leased property is assessed to the lessor rather than to the lessee.

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[18] "For taxation, credits due on account of money deposited with savings and loan corporations or building and loan associations, the principal place of business of which is located in this State, are an interest in the property of the corporation, and shall not be assessed to the owner."

Miscellaneous Physical Property

Miscellaneous physical property is generally considered to consist of various items of land, improvements, and tangible personal property which are not part of the operating structure of the public utility. Because of its nonoperating characteristics, this type of property is not considered to be part of the unit value of the utility and is consequently excluded from these calculations. These items are typically excluded from the earnings evidence without difficulty, either because no earnings of any kind are as yet associated with them or because the company has distinguished between its earnings from operating property and those from nonoperating property prior to capitalization by the Valuation Division. This type of property must, of course, be listed in the summary control statement which the company prepares for the Valuation Division, but it is listed separately and is easily excluded from the cost evidence as a result. Where very small amounts of such property are involved, however, the Valuation Division sometimes inconsistently computes the cost evidence to include these items. Since the stock and debt evidence logically includes these items of nonoperating property, a special deduction must be made to assure that the stock and debt evidence is comparable with the other evidences of value. In comparing the 1951 valuation with the 1952 valuation it is evident that the Valuation Division was more consistent in its treatment of this nonoperating property adjustment in the latter year than in the former, particularly in the computation of the stock and debt evidence. In those cases where account was taken of this item in 1952 but not in previous years, it was necessary for the Valuation Division to recompute the figures for the earlier years in the construction of the five-year average figures.

Adjustments to Bring the Data Up to the Lien Date

In almost all cases the property reports of the public utility taxpayers apply to the calendar year immediately preceding the year in which the lien date falls. Because of the fact that the Revenue and Taxation Code requires that the State Board of Equalization determine the value of the property as of the first Monday in March, it is necessary for the Valuation Division to take account of any changes in value which may have occurred between December 31st and the first Monday in March. The companies are required to submit supplementary reports to indicate any additions or betterments or retirements made between these two dates so that these items will appear on the state assessed property rolls. The data on these reports are also used to adjust the unit value figures, although the adjustment is not a rigorous one. The unit value of the company may also be affected by such things as increased stock market activity; the issuance of new stocks or bonds; a sharp increase in earnings; or a decision by the Public Utilities Commission to grant interim or permanent rate increases. All of these things are taken into consideration, but they tend to enter the valuation at the level of the bargaining process, where they serve as ''shading'' factors.

Statements and Reports Required of the Assessee

Several of the reports which the company must file with the Valuation Division were mentioned and discussed in the section dealing with the determination of the cost evidence. These were as follows:[19]

Tangible Property Lists. This consists of a list of all of the tangible, state-assessed property in California, except money, listed by code areas and by type of property. Undepreciated original cost is associated with each item of property with the exception of land and ''continuous structures,'' the latter being reported in the derivation of unit costs. Land items are fully described and located by reference to parcel numbers and map numbers on land identification maps, the latter also being filed periodically by the public utility company. Conspicuous structures, such as buildings and similar improvements, are described by type of construction, year of construction, dimensions, and the like. It is interesting to note that, in the *Instructions for Reporting,* the taxpayer is assured that *''These cost figures are not to be considered as a declaration by the taxpayer of the value for tax purposes.''*[20]

Derivation of Unit Costs. In this statement the company shows the derivation of unit or average costs for those types of property classified as ''continuous structures.'' The construction of this report and the use to which it is put in the valuation process was described in the section on cost determination in sufficient detail for present purposes.

Summary Control. The summary control statement is the most important of the several property reports of the company at least for valuation purposes. It describes the historical costs as of December 31st summarized by accounts. Land and licensed motor vehicles are shown separately. Separate columns on the prescribed form of the report are also devised to show those costs which are reported on the tangible property list and those which are used in the derivation of unit costs. In most cases, the company is required to reconcile the total historical costs with the investment record of the company.

Statement of Land Transfers. On this statement the company must list all lands which have been acquired or disposed of since the last previous property statement. These items are appropriately described by reference to parcel and map numbers. Other information, describing the nature of the transfer and the contracting parties, is included in this report.

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[19] The following list is taken from the State of California Board of Equalization, *Instructions for Reporting State Assessed Property and Private Cars,* adopted December 13, 1950, pp. 9-13.

[20] *Ibid.,* p. 10. Italics added.

In addition to these four statements, all of which were discussed in connection with the cost evidence, the company is required to submit the following:

Financial Statement. The financial statement consists of the company's balance sheet, income account statement, and other financial statements as specified on the forms supplied by the Valuation Division. These statements usually refer to California operations only, and in this respect differ from the consolidated statements of the company. As described in the section dealing with earnings evidence and stock and debt evidence, it is the statements which relate to the entire company rather than these special financial statements which are emphasized in the determination of the unit value.

Stockholders' Report. Companies assessed by the State Board of Equalization are also required to furnish copies of their stockholders' reports if such reports are prepared. Depending upon the practices of the company, these reports may be submitted annually, quarterly, or monthly.

Reports to the Public Utilities Commission. Many of the larger companies are required to submit to the Valuation Division copies of the reports which they prepare for the California Public Utilities Commission or other relevant regulatory agency. These are usually detailed accounts of the company's operations for the year and contain comparisons of the company's position at the beginning and at the end of the year. It is the numbering system attached to the accounts which appear in these reports that is adopted by the company for its other property statements to the Division.

Statement of Money and Solvent Credits. In this statement the company shows the total amount of money (not including bank deposits) held by the company at noon on the first Monday in March. This money is listed according to the code areas in which it was held at this time. As indicated by the title, the company must also list all solvent credits on this form.

The Role of Appraisals in the Techniques of the Valuation Division

In the determination of the unit value of a public utility enterprise the Valuation Division tends to minimize the process of actual field appraisal and to maximize the process of office calculation. Clearly, an examination of the individual items of property has little bearing upon either the earnings evidence or the stock and debt evidence. And even in the determination of the cost evidence it is theoretically possible to dispense with field appraisals and arrive at fairly accurate answers with the use of reputable engineering cost data, official price level statistics, and the regulated reports of the utility companies themselves. The Valuation Division does not go as far as this, however, for it does make use of field appraisals in the determination of the several cost evidences of value.

In all cases except one the field appraisals are supplementary to, rather than substitutes for, the office calculations. The one exception relates to the land items of property. Land items are subject to direct appraisal by the staff members of the Valuation Division and it is these appraised values which appear on the work sheets in the determination of the unit value. As stated earlier, not all land items of all utilities can be examined every year, and the years of nonexamination are filled in with appropriate office calculations. But the basic data for land are the appraisals which the Valuation Division makes, on the average, about once every five years.

The staff appraiser also has functions with respect to items of property other than land. These functions are primarily those of checking the "reasonableness" of the computed reproduction cost new less depreciation figures and, of course, in checking the locations and descriptions of the various items of property listed in the property reports of the company. Although the latter of these is laborious enough, it is primarily mechanical in character. The former, however, involves a thorough examination of the property in question with a particular view to determining the condition percent of the property. If the condition percent as determined by the appraiser does not agree with that computed by other techniques, the appraiser so reports to the officials of the Valuation Division and supports his appraisal with the data gathered in the field. If this support is strong enough, adjustments are made to the computed cost figures.

In summary, the role of the appraiser in the techniques of the Valuation Division appears to be something like the following:

(1) To appraise land directly by an examination of the property; a comparison of the utility property with the surrounding property; and an analysis of the peculiar uses to which the utility land is put. The Valuation Division's appraisal work is increasingly devoted to this task of land appraisal.

(2) To check the reports of the company with respect to the location (in code areas) and the description of the property.

(3) To check the reasonableness of the figures for reproduction cost new less depreciation of other-than-land properties. The depreciation of the property and the present condition percent are particularly emphasized in these examinations.

Final Statement on Unit Value

All of the explanations up to this point in the present chapter have been concerned with the manner in which the unit or system value of a public utility enterprise is *determined.* It remains to be shown how this unit value is *used.* The step from the unit value to the final figures which appear on the state-assessed property roll is a large one and, indeed, a highly complicated one. Basically, it consists of cutting up the unit value and distributing the parts to the many taxing jurisdictions within the State and, in addition, listing these parts according to the major property classifications as required by law. If the terminology and the reasoning presented in earlier chapters of this report are accepted, *it is at this point that we leave the problem of valuation and approach the problem of assessment.*

Intrastate Allocation of the Unit Value

Once the unit value of a utility enterprise has been determined, the Valuation Division is required to divide the value up according to two different patterns. The first of these is a geographical pattern, by which the value is distributed among the many taxing jurisdictions within the State. The second pattern is one which requires a distinction between the several types of property, viz., land, improvements, personal property, possessory interests, etc.

The geographical pattern is clearly prescribed in the Revenue and Taxation Code. Section 758, for example, instructs the State Board of Equalization to "transmit to each county auditor a roll showing the assessments made by the board in the county and in each city and revenue district in the county; provided, however, that the roll need not show the assessments made by the board in a revenue district which did not levy a tax or assessment during the preceding year." The allocation of the unit value by the State Board of Equalization to the various taxing jurisdictions is also affected by the general requirements of Section 760, in which it is declared that "State-assessed property is subject to taxation to the same extent and in the same manner as other property." This section has the effect (among others) of making the provisions of several sections of Chapter 3, Article 6 of the Revenue and Taxation Code which specify procedures for local assessors in the preparation of the local roll apply to the State Board of Equalization in its preparation of the state-assessed property roll. Some of the relevant sections of this chapter are as follows:

604. "All property shall be arranged on the roll by elementary school districts."
605. "If any school district embraces property situated both within and without a city, the property within the city shall be kept separate from that without."
606. "When any tract of land is situated in two or more revenue districts, the part in each district shall be separately assessed."

As will shortly be shown, this system of reporting has been greatly simplified by the Valuation Division through the development of a "code area" system. In spite of the considerable simplifications which this code area system admits, the large number of such areas, made necessary by the overlapping character of the taxing jurisdictions, means that geographical allocation is still extremely complex. Unfortunately, however, this is not the only complexity in the allocation process.

Under circumstances other than those which prevail in California at the present time, it would be theoretically appropriate for the Valuation Division to determine the unit value of a given utility company and then apply some arbitrary rule-of-thumb to allocate this total value among the various code areas. The arbitrary rule could be in terms of miles of cable, amount of land taken up by the property in question, the reproduction costs of the properties located in the code areas, or any combination of factors similar to those used for *interstate* allocations. Although the sum of all of the allocated values would equal the unit value by this technique, it is clear that the dollar amounts allocated to each code area would not, in themselves, represent meaningful values in the market value sense. But according to the principles of unit valuation these allocated amounts *could* not represent such market values, no matter how sophisticated the formula. They would simply be *expedient* "values" to facilitate local taxation and to fulfill the letter of the law. Under such a scheme, there would, of course, be no need to list the individual items of property separately according to their type—no need, that is, to show land, improvements, or personal property separately on the rolls. The task of allocating a value which can only be associated with the system as a whole to particular *types* of property is just as fruitless as the task of allocating that value to particular *geographical* areas, and, in this simplified system, could readily be dispensed with. Unfortunately, however, the character of the property tax in California as it is used by the various local taxing jurisdictions requires even this type of allocation, for the tax base is by no means uniform. In some cases the rate is applied to land, improvements, and personal property without distinction. In other cases, the rate is applied only to land and improvements. In still other cases, the rate is applied only to land.[21] In any event, the distinctions between types of property are required by the Revenue and Taxation Code, in part by Section 607, which states that "land and improvements thereon shall be separately assessed," and in part by the more complete listing of the contents of the local roll in Section 602. Each of these sections is relevant to the state-assessed roll by the implications of Section 760 mentioned above.

Thus, the second type of allocation, i.e., by types of property, cannot be avoided. But neither can the conclusion be avoided that such an allocation must be made according to rule-of-thumb standards which are in no way more scientific than those applied for the geographical allocation.

The Geographical Pattern—the "Code Area" System

As of May, 1952, the total number of active taxing units in the State was 4,705. This total included the 58 counties, 305 cities, 2,043 school districts, and 2,299 special districts. Table III shows these tax units by type and by county.

The sheer number of these taxing units makes the allocation problem a mechanically difficult one. But the problem is made even more difficult by the fact that the boundaries of these districts often overlap in a highly irregular fashion. One special district may fall into two or more school districts and irregular portions of that special district may fall into still other special districts. A single parcel of property in a given county may be located in 10 or 12 separate taxing units, each of which applies its own rates to the assessed value of the property. The parcel may, for example, lie in a city, an elementary school district, a high

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[21] See the Report of the Senate Interim Committee on State and Local Taxation, Part Three, "Aggregate Property Tax Rates and Their Implications With Respect to Business Location and Development in California," California Legislature, June, 1949, p. 17.

TABLE III

SUMMARY OF REVENUE DISTRICTS, BY COUNTY, AS OF FEBRUARY 1, 1952[a]

		Schools					*Acquisition and Improvement*		
County	*Cities*	*Elementary*	*High*	*Unified*	*Junior College*	*College*	*County*	*Municipal*	*Airport*
Alameda	10	27	4	7	--	--	--	3	--
Alpine	--	1	--	--	--	--	--	--	--
Amador	4	6	2	1	--	--	--	--	--
Butte	4	32	4	2	--	--	--	--	--
Calaveras	1	23	2	--	--	--	--	--	--
Colusa	2	15	5	--	--	--	--	--	--
Contra Costa	11	26	8	3	1	--	--	--	--
Del Norte	1	6	1	--	--	--	--	--	--
El Dorado	1	39	1	2	--	--	--	--	--
Fresno	15	97	18	2	--	--	--	--	--
Glenn	2	18	4	--	--	--	--	--	--
Humboldt	6	62	4	2	--	--	--	1	--
Imperial	7	24	5	1	--	--	--	--	--
Inyo	1	11	4	2	--	--	--	--	--
Kern	7	56	8	1	--	--	--	--	--
Kings	3	23	6	--	--	--	--	2	--
Lake	1	8	4	2	--	--	--	--	--
Lassen	1	18	2	2	--	--	--	--	--
Los Angeles	45	80	20	13	6	--	--	7	--
Madera	2	29	5	--	--	--	--	--	--
Marin	9	31	3	--	1	--	--	--	--
Mariposa	--	--	--	1	--	--	--	--	--
Mendocino	4	25	7	1	--	--	--	--	--
Merced	6	29	6	1	--	--	--	--	--
Modoc	1	17	4	1	--	--	--	--	--
Mono	--	5	1	--	--	--	--	--	--
Monterey	8	40	6	2	1	--	--	--	1
Napa	3	18	2	2	--	--	--	--	--
Nevada	2	18	2	1	--	--	--	--	--
Orange	13	40	10	2	3	--	--	2	--
Placer	5	26	3	1	--	--	--	--	--
Plumas	1	--	--	2	--	--	--	--	--
Riverside	12	36	7	4	1	--	--	--	--
Sacramento	5	40	7	2	--	--	--	--	--
San Benito	2	28	2	--	--	--	--	--	--
San Bernardino	9	54	8	2	1	1	--	--	--
San Diego	8	50	8	4	1	--	--	--	--
San Francisco	1	--	--	1	--	--	--	--	--
San Joaquin	5	69	9	1	--	--	--	--	--
San Luis Obispo	4	45	7	--	--	--	4	--	--
San Mateo	13	23	4	1	1	--	--	2	--
Santa Barbara	4	28	5	--	--	--	--	--	--
Santa Clara	9	40	8	2	--	--	--	1	--
Santa Cruz	3	21	2	1	--	--	--	--	--
Shasta	1	50	3	1	--	--	--	--	--
Sierra	1	--	1	1	--	--	--	--	--
Siskiyou	8	39	3	--	--	--	--	--	--
Solano	7	21	5	3	--	--	--	--	--
Sonoma	6	76	8	1	1	--	1	2	--
Stanislaus	7	40	7	1	1	--	--	--	--
Sutter	2	22	4	--	--	--	--	--	--
Tehama	3	28	3	--	--	--	--	--	--
Trinity	--	19	1	--	--	--	--	--	--
Tulare	7	76	13	2	1	--	--	--	--
Tuolumne	1	21	2	--	--	--	--	--	--
Ventura	6	31	6	1	--	--	--	1	--
Yolo	3	28	7	--	--	--	--	--	--
Yuba	2	18	2	--	1	--	--	--	--
Totals	305	1,703	245	75	19	1	5	21	1

TABLE III—Continued

SUMMARY OF REVENUE DISTRICTS, BY COUNTY, AS OF FEBRUARY 1, 1952[a]

County	*Bridge*	*Cemetery*	*Conservation*		*Drainage*	*Fire Protection*	*Flood Control*	*Garbage*	*Hospital*
			Soil	*Water*					
Alameda	--	--	--	--	--	16	1	--	2
Alpine	--	--	--	--	--	--	--	--	--
Amador	--	1	--	--	--	4	--	--	--
Butte	--	9	--	--	2	3	--	--	--
Calaveras	--	7	--	--	--	6	--	--	1
Colusa	--	10	--	--	--	7	--	--	--
Contra Costa	--	2	--	--	--	22	1	--	3
Del Norte	1	--	--	--	--	3	--	--	1
El Dorado	--	1	--	--	--	2	--	--	--
Fresno	--	14	--	1	2	9	--	--	1
Glenn	--	7	--	--	--	7	--	--	--
Humboldt	--	--	--	--	--	11	1	--	--
Imperial	--	2	--	--	--	2	--	--	--
Inyo	--	2	--	--	--	4	--	--	2
Kern	--	6	2	--	--	11	--	--	2
Kings	--	3	--	2	--	2	--	--	2
Lake	--	4	--	--	--	7	--	--	--
Lassen	--	2	--	--	--	4	--	--	--
Los Angeles	--	4	5	--	--	8	1	14	--
Madera	--	2	1	--	--	--	--	--	1
Marin	1	--	--	--	--	7	--	--	1
Mariposa	--	--	--	--	--	1	--	--	1
Mendocino	1	8	--	--	--	4	--	--	--
Merced	--	9	--	2	1	--	--	--	--
Modoc	--	--	10	--	--	--	11	--	--
Mono	--	--	--	--	--	5	--	--	--
Monterey	--	4	--	--	--	12	2	1	3
Napa	1	1	--	--	--	1	--	--	--
Nevada	--	2	--	--	--	1	--	--	1
Orange	--	3	2	--	6	2	1	--	--
Placer	--	5	1	--	--	13	--	--	1
Plumas	--	--	6	--	--	7	--	--	1
Riverside	--	10	3	3	1	7	--	--	4
Sacramento	--	6	1	--	--	28	1	--	--
San Benito	--	--	3	--	--	1	--	--	--
San Bernardino	--	2	4	2	--	19	1	--	--
San Diego	--	3	1	1	--	15	--	--	3
San Francisco	1	--	--	--	--	--	--	--	--
San Joaquin	--	2	--	2	1	20	--	--	--
San Luis Obispo	--	11	2	2	--	12	--	1	2
San Mateo	--	--	1	--	--	10	--	--	2
Santa Barbara	--	7	3	2	--	6	--	--	1
Santa Clara	--	1	5	3	--	11	--	--	1
Santa Cruz	--	--	2	--	--	13	--	--	--
Shasta	--	8	--	--	--	10	--	--	--
Sierra	--	1	--	--	--	3	--	--	1
Siskiyou	--	5	--	--	--	6	--	--	--
Solano	--	7	--	--	--	10	--	--	--
Sonoma	1	2	3	--	1	12	--	--	2
Stanislaus	--	3	--	--	--	11	--	--	1
Sutter	--	6	--	--	--	1	--	--	--
Tehama	--	7	--	--	--	1	--	--	1
Trinity	--	--	--	--	--	2	--	--	--
Tulare	--	13	--	2	--	5	--	--	3
Tuolumne	--	5	--	--	--	4	--	--	--
Ventura	--	3	4	4	3	1	1	--	--
Yolo	--	6	--	--	--	16	--	--	--
Yuba	--	7	--	--	--	2	--	--	--
Totals	1	222	29	21	17	420	10	16	44

TABLE III—Continued

SUMMARY OF REVENUE DISTRICTS, BY COUNTY, AS OF FEBRUARY 1, 1952 [a]

	Improvement							*Maintenance*	
County	*Municipal*	*Drainage*	*Road or Street*	*Joint Highway*	*Levee*	*Library*	*Lighting*	*Lighting*	*River Project*
Alameda	--	--	--	1	--	--	1	--	--
Alpine	--	--	--	--	--	--	--	--	--
Amador	--	--	--	--	--	--	2	1	--
Butte	1	--	--	--	--	--	--	--	--
Calaveras	--	--	--	--	--	--	6	--	--
Colusa	--	--	--	--	--	--	1	--	--
Contra Costa	--	--	--	1	--	--	16	--	--
Del Norte	--	--	--	--	--	--	--	--	--
El Dorado	--	--	--	--	--	--	2	--	--
Fresno	--	--	--	--	--	--	11	--	--
Glenn	--	--	--	--	3	--	--	--	--
Humboldt	--	--	--	--	--	--	5	1	--
Imperial	--	--	--	--	--	--	--	--	--
Inyo	--	--	--	--	--	--	3	--	--
Kern	--	--	--	--	1	--	16	--	--
Kings	--	--	--	--	--	--	--	--	--
Lake	--	--	--	1	--	1	5	--	--
Lassen	--	--	--	1	--	--	1	--	--
Los Angeles	48	--	--	--	--	2	90	69	--
Madera	--	--	--	--	--	--	--	--	--
Marin	--	--	--	2	--	--	13	--	--
Mariposa	--	--	--	--	--	--	3	--	--
Mendocino	--	--	--	4	--	--	5	--	--
Merced	--	--	--	--	--	--	7	2	--
Modoc	--	--	--	--	--	--	5	--	--
Mono	--	--	--	--	--	--	--	--	--
Monterey	--	--	--	--	--	--	3	--	--
Napa	--	--	--	--	--	--	--	--	--
Nevada	--	--	--	--	--	--	--	--	--
Orange	3	--	--	--	--	4	19	1	--
Placer	--	--	--	--	--	--	3	--	--
Plumas	--	--	--	--	--	--	3	--	--
Riverside	--	--	--	--	--	--	5	1	--
Sacramento	--	--	--	--	--	2	7	2	--
San Benito	--	--	--	--	--	--	--	--	--
San Bernardino	--	--	--	--	--	--	12	--	--
San Diego	--	--	--	--	--	--	14	6	--
San Francisco	--	--	--	3	--	--	--	--	--
San Joaquin	--	--	--	--	--	--	7	5	--
San Luis Obispo	--	--	--	--	--	--	12	--	--
San Mateo	--	1	--	2	--	--	17	--	--
Santa Barbara	1	--	--	--	--	--	9	--	--
Santa Clara	--	--	--	--	--	--	11	10	--
Santa Cruz	--	1	--	1	--	--	11	--	--
Shasta	5	--	--	--	--	--	5	2	--
Sierra	--	--	--	1	--	--	3	--	--
Siskiyou	--	--	--	--	--	--	--	--	--
Solano	--	--	--	--	1	--	4	--	--
Sonoma	--	--	1	3	--	--	9	--	--
Stanislaus	--	--	--	--	--	6	6	--	--
Sutter	--	--	--	1	1	--	--	--	1
Tehama	--	--	--	--	1	--	2	--	--
Trinity	--	--	--	1	--	--	1	1	--
Tulare	--	--	--	--	--	--	--	--	--
Tuolumne	--	--	--	--	--	--	4	--	--
Ventura	--	--	--	--	--	--	12	1	--
Yolo	--	--	--	1	--	--	--	--	1
Yuba	--	--	--	1	1	--	--	--	--
Totals	58	2	1	13	8	9	371	102	2

TABLE III—Continued

SUMMARY OF REVENUE DISTRICTS, BY COUNTY, AS OF FEBRUARY 1, 1952 [a]

	Maintenance								
County	*Road or Street*	*Sewer*	*Storm Drainage*	*Water*	*Memorial*	*Mosquito Abatement*	*Park Recreation and Parkway*	*Pest Abatement*	*Police*
Alameda	--	--	--	--	--	1	3	--	--
Alpine	--	--	--	--	--	--	--	--	--
Amador	--	--	--	--	--	--	--	--	--
Butte	--	--	--	--	--	3	3	--	--
Calaveras	--	--	--	--	--	--	--	--	--
Colusa	--	--	1	--	--	--	--	--	--
Contra Costa	--	4	--	--	--	3	3	--	1
Del Norte	--	--	--	--	--	--	--	--	--
El Dorado	--	--	--	--	--	--	--	--	--
Fresno	--	--	--	--	2	2	1	--	2
Glenn	--	--	1	--	--	--	--	--	--
Humboldt	--	--	1	--	--	--	--	1	--
Imperial	--	--	--	--	--	--	--	--	--
Inyo	--	--	--	--	--	--	--	--	--
Kern	1	--	--	--	--	3	2	--	--
Kings	--	--	--	--	--	4	--	--	--
Lake	--	--	--	--	--	1	--	--	--
Lassen	--	--	--	--	--	--	--	1	--
Los Angeles	--	62	--	--	--	3	6	--	--
Madera	--	--	--	--	1	1	--	--	1
Marin	--	9	--	--	--	1	1	--	--
Mariposa	--	--	--	--	--	--	--	--	--
Mendocino	--	2	1	--	--	--	--	--	--
Merced	--	--	--	--	--	1	--	--	--
Modoc	--	--	--	--	--	--	--	2	--
Mono	--	--	--	--	--	--	--	--	--
Monterey	--	--	1	--	2	1	--	--	--
Napa	--	--	--	--	1	1	--	--	--
Nevada	--	--	--	--	--	--	--	--	--
Orange	--	1	--	--	--	1	4	--	--
Placer	--	--	--	--	--	--	--	--	--
Plumas	--	--	--	--	--	2	1	--	--
Riverside	--	--	--	--	--	--	--	--	--
Sacramento	--	--	--	--	1	1	3	2	--
San Benito	2	5	5	5	--	1	6	--	--
San Bernardino	--	--	--	--	--	--	9	1	--
San Diego	--	--	--	--	--	--	--	--	--
San Francisco	--	--	--	--	--	--	--	--	--
San Joaquin	--	2	--	--	--	1	--	--	1
San Luis Obispo	--	2	--	--	--	--	--	--	--
San Mateo	1	8	1	--	--	2	1	--	7
Santa Barbara	--	--	1	--	--	--	--	1	--
Santa Clara	--	--	--	--	1	1	--	--	--
Santa Cruz	--	4	1	--	--	--	3	--	1
Shasta	--	1	--	--	--	5	--	--	--
Sierra	--	--	--	--	--	--	--	--	--
Siskiyou	--	--	--	--	--	--	3	1	1
Solano	--	--	--	--	--	1	1	--	--
Sonoma	--	2	--	--	--	1	6	--	--
Stanislaus	--	--	--	--	--	2	--	--	--
Sutter	--	--	--	--	--	1	--	--	--
Tehama	--	--	--	--	--	1	--	--	--
Trinity	--	--	--	--	--	--	--	--	--
Tulare	--	1	--	--	10	4	--	--	2
Tuolumne	--	--	--	--	--	--	--	--	--
Ventura	--	--	3	--	1	--	--	--	--
Yolo	--	--	--	--	--	1	--	--	--
Yuba	--	--	--	--	--	1	--	--	--
Totals	4	103	16	5	19	40	56	9	16

TABLE III—Continued

SUMMARY OF REVENUE DISTRICTS, BY COUNTY, AS OF FEBRUARY 1, 1952 [a]

County	Port and Harbor	Protection from Storm Water	Permanent Road	Road Supervisorial	Sanitary	Sanitation	Sewer	Utilities		Water	Miscellaneous
								Municipal	Public		
Alameda	--	--	--	--	7	--	--	1	--	5	--
Alpine	--	--	--	5	--	--	--	--	1	--	--
Amador	--	--	--	5	1	--	--	--	--	1	--
Butte	--	--	--	--	--	--	--	--	1	--	--
Calaveras	--	--	--	5	3	--	--	--	3	1	--
Colusa	--	--	--	5	--	--	--	--	2	1	--
Contra Costa	--	--	--	5	9	--	2	1	2	10	--
Del Norte	1	--	--	5	--	--	--	1	--	--	--
El Dorado	--	--	--	5	--	--	--	--	3	--	--
Fresno	--	--	--	5	1	--	--	--	3	9	--
Glenn	--	--	--	5	--	--	1	--	--	--	--
Humboldt	--	--	--	5	4	--	--	--	--	--	--
Imperial	--	--	--	--	1	--	--	--	2	--	--
Inyo	--	--	--	--	3	--	--	--	--	--	--
Kern	--	1	--	4	1	11	--	1	6	1	--
Kings	--	1	--	4	3	--	--	--	2	--	--
Lake	--	--	--	5	--	--	--	--	--	3	--
Lassen	--	--	--	--	1	--	--	1	--	1	1
Los Angeles	--	--	--	5	--	17	1	1	1	36	--
Madera	--	--	--	5	--	--	--	--	--	--	--
Marin	--	--	--	5	10	1	--	--	3	1	--
Mariposa	--	--	--	5	--	--	--	--	1	--	--
Mendocino	1	--	--	5	--	--	--	--	1	1	--
Merced	--	--	--	--	1	--	--	--	--	--	--
Modoc	--	--	--	5	--	--	--	--	--	--	--
Mono	--	--	--	5	--	--	--	--	3	--	--
Monterey	1	--	--	--	2	4	--	--	--	--	--
Napa	--	--	--	--	--	2	--	--	--	3	1
Nevada	--	--	--	--	1	--	--	--	2	--	--
Orange	1	3	--	4	11	8	--	--	--	15	--
Placer	--	--	--	5	2	--	--	--	3	1	--
Plumas	--	--	--	5	3	--	--	--	3	--	--
Riverside	--	--	--	5	5	--	--	--	1	4	--
Sacramento	1	--	--	--	3	5	--	--	--	2	--
San Benito	--	1	--	5	--	--	--	--	--	--	--
San Bernardino	--	--	--	--	3	4	1	--	--	9	--
San Diego	--	--	--	--	6	10	--	--	5	3	--
San Francisco	--	--	--	--	--	--	--	--	--	--	--
San Joaquin	1	--	--	3	4	1	1	--	--	4	3
San Luis Obispo	--	--	--	5	9	--	--	--	--	10	--
San Mateo	1	--	--	--	9	3	--	--	1	8	--
Santa Barbara	--	1	--	5	4	--	--	--	--	6	--
Santa Clara	--	1	--	--	4	3	--	--	--	1	--
Santa Cruz	1	--	--	--	--	5	--	--	--	3	1
Shasta	--	--	--	5	--	--	1	--	3	2	--
Sierra	--	--	--	5	--	--	--	--	4	1	--
Siskiyou	--	--	--	5	1	--	--	--	--	--	--
Solano	--	--	--	5	1	1	1	--	--	--	--
Sonoma	--	1	4	5	--	8	--	--	3	--	--
Stanislaus	--	--	--	5	3	2	--	--	--	--	--
Sutter	--	--	--	5	--	--	--	--	--	--	--
Tehama	--	--	--	--	--	--	--	--	--	--	--
Trinity	--	--	--	5	--	--	--	--	--	1	--
Tulare	--	1	--	5	1	--	--	--	8	1	--
Tuolumne	--	--	--	4	2	--	1	--	--	2	--
Ventura	--	--	--	5	2	--	--	--	--	8	--
Yolo	1	--	--	5	3	--	--	--	--	1	1
Yuba	--	--	--	--	3	--	--	--	1	--	--
Totals	8	7	4	197	122	85	9	3	65	151	7

NOTE: [a] The total number of code areas for all counties is 4,647. This includes 145 joint districts. It does not include 112 districts of various types omitted from the board roll under authority of Section 758 of the Revenue and Taxation Code.

SOURCE: "Summary of Revenue Districts," Valuation Division, State Board of Equalization, February 1, 1952.

school district, a junior college district, a fire protection district, and a sanitary district. Another parcel of property only a block away may lie in all of the above districts except the fire protection district. It is clear that the total tax rates applied to these two parcels of property will be different, thereby necessitating the separate listing of any public utility property which passes through each of the two areas.

It is the purpose of the code area system to locate the geographical boundaries of those areas within which a uniform rate of property taxation is applied and to apply a code number to these areas in such a way that a logical pattern of numbering results. It has been stated that such a numbering system should fulfill three basic requirements, viz., simplicity, flexibility or capability of indefinite expansion, and convenient arrangement of areas by cities and elementary school districts.[22]

The construction of a code area system of this type clearly begins with a complete mapping of the area to be coded (a county, for example) and the designation of the various tax-unit boundaries by some suitable mapping legend. The next step involves the numbering of the "uniform rate" areas. The code numbering system developed by the Valuation Division is at present a five-digit system, although in any one case the number may consist of three, four, or five digits. Two types of taxing jurisdictions are represented in the total code number. The first two digits (to the right) are reserved for the so-called "secondary areas" and the remaining digits (three at the most) are reserved for the so-called "primary areas."[23] *Primary areas* consist of incorporated municipalities and elementary school districts outside of municipalities. Thus, the primary areas account for all of the area of a county with no overlapping of districts within the primary group. The cities in the county are arranged alphabetically and given numbers from 1 to 50 inclusive. The elementary school districts outside cities are similarly arranged alphabetically and numbered from 51 to 999. *Secondary areas* consist of the various subdivisions of the primary areas which are created when all other revenue districts are added to the picture. Each subdivision, of course, has a group of taxing districts which are common to it but which are different, in some respect, from those which apply to other subdivisions. The two digits reserved for the secondary areas permit a maximum of 99 "uniform rate" areas to each of the primary areas. These secondary areas always use up both of the assigned digits, so that those numbered from one to nine inclusive are listed as 01, 02, 03, etc.

The total code number might appear as 601, or as 6702, or possibly as 12304. Because the first of these contains only three digits, it is possible to say that this area is located in a city which occupies the sixth position on the alphabetical list in this county. Because the second of these code numbers begins with 67, it is possible to say that this area is located in the elementary school district which is 67th in the alphabetical list of school districts in this county. For the same reason, the third code number indicates that the area is in the 123d elementary school district. In all of the above illustrations, the two digits at the right of the number (01, 02, and 04) indicate the secondary area involved. The specific character of these can be determined only by an examination of the map or the code area sheet.

The code area system itself is simple enough, although a great deal of mechanical effort must be expended each year in taking account of any code area changes which may be reported to the Valuation Division. Such changes are made necessary, of course, by changes in the boundaries of any tax unit through the annexation of new areas, the creation of new districts, or the demise of old districts. It is clear that a change in any one boundary may make it necessary to change a whole group of code area designations. The number of code areas as of February, 1952, is shown in Table IV by counties and by types:

TABLE IV

SUMMARY OF CODE AREAS BY COUNTY

February 1, 1952

County	*Primary*	*Secondary*	*1952 Total Code Areas*	*1951 Total Code Areas*
Alameda	38	295	304	224
Alpine	1	12	12	12
Amador	11	53	57	56
Butte	38	70	91	94
Calaveras	24	92	98	99
Colusa	17	60	66	66
Contra Costa	40	348	355	343
Del Norte	7	25	27	25
El Dorado	42	53	76	74
Fresno	114	263	301	240
Glenn	20	96	98	98
Humboldt	70	163	195	193
Imperial	32	59	72	75
Inyo	14	18	27	38
Kern	64	208	223	216
Kings	26	102	106	76
Lake	11	61	63	62
Lassen	21	59	66	56
Los Angeles	140	1,783	1,794	1,689
Madera	31	36	52	47
Marin	40	133	144	127
Mariposa	1	55	55	55
Mendocino	30	105	113	113
Merced	36	84	94	93
Modoc	19	54	60	60
Mono	5	13	14	14
Monterey	50	156	172	168
Napa	23	40	49	50
Nevada	21	37	50	50
Orange	54	431	435	425
Placer	32	134	141	139
Plumas	3	60	60	60
Riverside	51	249	259	258
Sacramento	46	319	322	285
San Benito	30	51	61	59
San Bernardino	65	280	290	281
San Diego	62	286	304	275
San Francisco	1	0	1	1
San Joaquin	76	271	287	275
San Luis Obispo	47	186	199	197

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[22] Mott, A. G., *Code Area System*, A paper presented to the Forty-fifth Annual Conference of the County Assessors of California, San Francisco, September 3, 1947, mimeographed, p. 2.

[23] These points are further discussed in the Report of the Senate Interim Committee on State and Local Taxation, Part Three, June, 1949, op. cit., pp. 15-21.

TABLE IV—Continued

SUMMARY OF CODE AREAS BY COUNTY

February 1, 1952

County	*Primary*	*Secondary*	*1952 Total Code Areas*	*1951 Total Code Areas*
San Mateo	36	337	339	315
Santa Barbara	32	179	181	177
Santa Clara	50	325	332	317
Santa Cruz	24	170	176	164
Shasta	52	114	141	141
Sierra	2	20	21	21
Siskiyou	47	83	100	103
Solano	31	100	111	109
Sonoma	83	335	357	353
Stanislaus	48	97	120	120
Sutter	24	62	69	65
Tehama	31	33	54	54
Trinity	19	27	37	37
Tulare	85	25	224	239
Tuolumne	22	58	66	66
Ventura	38	264	267	255
Yolo	31	133	140	137
Yuba	20	65	70	63
	2,128	9,227	9,998	9,504

SOURCE: Figures supplied by the State Board of Equalization, Valuation Division.

Each of the utility companies reporting to the State Board of Equalization is required to report its property according to these code areas. The Valuation Division supplies the code area maps to the county assessors and will sell the service to the public utility taxpayers. Perhaps the greatest advantage of the code area system is that it greatly facilitates the preparation of the state-assessed property roll by permitting the use of mechanical equipment to the greatest possible extent. It is difficult to imagine the completion of these tasks without the use of the elaborate punching, sorting, tabulating, and printing equipment which at the present time is used by the Valuation Division.

The Allocation "Formula"

Once the code areas have been set up and all of the individual items of property of a given public utility have been located in these code areas, it would appear to be possible for the Valuation Division to determine an allocation factor on the basis of some suitable formula and apply this allocation factor with the help of the calculating equipment at its disposal. It would be a mistake, however, to think of the actual operations as entirely mechanical in character, with the only analytical problems being those associated with the determination of the allocation formula. As these operations are currently conducted they contain a great amount of personal judgment on the part of the Valuation Division and a great many rule-of-thumb decisions. The actual operations are thus sufficiently subjective, and differ so markedly as they apply to different types of utilities and to different individual companies, as to prevent any detailed analysis of them at the present time. They are analyzed in more detail in the following chapters in the discussion of particular companies, and only the most general remarks are made at this point. This statement must, however, serve as a warning, because it is possible to assume from this discussion that greater purity actually exists in these operations than the tentative character of the explanation warrants.

Although no formula is developed and used with mathematical precision in this area, it is fair to say that the emphasis is placed upon reproduction cost new less depreciation as an allocating element. The closest thing to a formula is the determination of the ratio of the unit value to the total reproduction cost new less depreciation of all of the physical property of the public utility. It is this percentage figure which is used as a rough guide in the allocation process.[24]

Taxable Items Which Are Not Part of the Unit Value

As has been pointed out from time to time in this chapter, there are certain property items which the Valuation Division considers not to be a part of the unit value, but which are, nevertheless, taxable property. The most important of these items are the nonoperating property of the enterprise; the quantity of money held by the company as of noon on the first Monday in March; and the leased property assessed to the utility. Since these items are not in the unit value to begin with, they are clearly not subject to the percentage allocation discussed above. They may be placed on the work sheets of the Valuation Division directly according to their code area location. The dollar value associated with these items is usually that determined by direct appraisal or, in the case of money, the actual amount reported by the company.

Items Extracted From Unit Value Prior to Allocation

In addition to those items which are not included in the original unit value figure, the Valuation Division extracts certain items of property from the unit value figure on the grounds that they do have a market value which is distinct from the market value of the entire system. It is assumed, in other words, that some types of property can be marketed by the utility with no effect upon its operations. However, the reasoning in these cases is by no means clear. The major items in this category are land, materials and supplies, and construction work in progress, and of these, land is by far the most important. All of these items are located by code areas and, for the most part, removed from the unit value and placed on the work sheets at their appraised values.

Other Property

All other types of property are allocated to various code areas according to the rough allocation formula mentioned above. In the case of continuous structures, this involves determining the physical quantity (mileage, number of units, etc.) which can be located in each of the code areas and the reproduction cost new less depreciation per unit of such property. In the case of telephone poles, for example, the reproduction cost new less depreciation per pole is computed by dividing the reproduction cost new less depreciation for all poles in the system by the total number of poles in the system and multiplying the result by the number of poles in a particular code area. This is then multiplied by the ratio of the unit value of the system to the total reproduction cost new less depreciation of *all* of the utility property, and the result placed on the work sheets as the "market value" of all poles in the code area in question. For noncontinuous structures, such as buildings and equipment, the ratio is applied directly to the reproduction cost new less depreciation of the individual item. Behind this allocation technique lies the clear assumption that the unit value is spread over the various items which make up the unit in the same way that the total reproduction cost new less depreciation is spread over these items.

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[24] This percentage may, of course, be greater than, equal to, or less than 100. In recent years it has been less than 100 for most companies, in view of the fact that reproduction cost figures have tended to be inflated relative to the other evidences of value.

When this statement of the allocation assumption has been made, however, it must be immediately qualified, because the Valuation Division attempts to adjust the allocation to take account of such factors as the density of population (since this presumably has a bearing upon the revenues contributed by the various properties), terminal facilities, and like factors. It is at this point that the subjective decisions become important. It is consequently necessary to restate at this point that the formula discussed above is merely a guide, and that the figures placed against the individual items of property on the work sheets have only an approximate relationship to the figures which would be determined by a mathematically precise computation. The mathematical ratio is, in effect, subjected to a "shading" process.

One further difficulty prevents the use of the simple mathematical operation implied in the first paragraph of this section. This derives from the fact that the Valuation Division does not know the reproduction cost new less depreciation of every individual item of property for every year. As discussed in the section on cost evidence determination, such figures are computed only with the full "reproduction cost studies" which appear every four or five years, at best. As a result, the actual computations involve the use of the previous year's work sheets and the adjustment of these figures to reflect the new situation and the new unit value. At the appropriate time of the year almost the entire staff of the Valuation Division is engaged in this phase of the operations.

Whatever specific allocation results from these operations, it is clear that the sum of all the "market value" figures must be equal to the unit value (plus those items that do not appear in the unit value) with only a small margin of error permitted. Allocation is merely a process for distributing the unit value among the various taxing jurisdictions and, while of great importance for any individual tax unit, it does not affect the total assessed value of the utility enterprise.

The Preparation of the Roll

From this point on the process is almost entirely mechanical. The information discussed above is sorted by counties, by code areas, and by class of property and is listed in triplicate by the printer machine. One copy is filed as a permanent record of the detail which is behind the assessment for the year; one copy is kept by the Valuation Division as a work sheet for the following year (to serve, that is, as the starting point for the next year's allocation); and the third copy is sent to the taxpayer for checking and for the location of any errors.

This listing does not, of course, represent the final assessment roll. In the first place, it contains a needless amount of detail for the purposes of the county authorities. The many items of property must be grouped according to their major types. In the second place, the dollar amounts on these work sheets are "market values" rather than "assessed values." They must be divided in half (multiplied by .5 in the machine operation) under the declaration that all state-assessed property is assessed at 50 percent of its market value. Furthermore, these work sheets are prepared for each *taxpayer,* while the final assessment roll must indicate the assessed values of all the state-assessed taxpayers for each *code area.* Once again, this regrouping is done mechanically. It results in the printing of a "dummy roll" for proofreading purposes and in the printing of the final roll in duplicate for action by the State Board of Equalization on the first Monday in August.

SUMMARY REMARKS ON PUBLIC UTILITY ASSESSMENT

The Work Calendar of the Valuation Division

The instructions which the Valuation Division sends to the public utility taxpayers indicate that all reports which the companies make to the Valuation Division, with the exception of the Financial Statement and the Statement of Money and Solvent Credits, must be filed not later than March 16th of each year. The two excepted statements must be filed not later than April 1st of each year. Some of these reports are preliminary, since they are filed prior to the final reports on code area changes. In addition, the Valuation Division may extend the filing date for not more than 30 days upon the request of the company. In fact, these reports from the companies usually start flowing in sometime in February and continue into April. The field trips of the technical appraisal staff continue (with some exceptions) until March, at which time most of this staff is recalled to headquarters in Sacramento for the concentrated clerical work required at that time.

As the data are worked up to indicate the unit values of the various companies, the Valuation Division schedules informal hearings with the officials of many of the assessees for the purpose of ironing out preliminary differences. Many of the companies, of course, choose to carry on such discussions by correspondence or even by telephone. Still others are content to accept the decision of the Valuation Division. These discussions usually continue through the first week in May, and the final unit value decisions (that is, for the last companies) are made around June 1st.

When the unit values for individual companies have been computed, the staff begins the long process of allocating these unit values to the several code areas.

While this allocation process is going on, the comptometer operator punches cards for each item of property but does not include the so-called ''market values'' of these items. These ''market values'' are added as they are completed for each company and after they have been totaled, to assure that they check with the unit value figure as determined by the Chief of the Valuation Division.

The work of mapping the code areas goes on more or less continuously, although it tends to be most heavily concentrated just after February 1st. This is the date by which, according to the requirements of Government Code Section 54900, any changes in the boundaries of tax units must be reported to the State Board of Equalization.

Dummy rolls are prepared sometime in June. As indicated, these are the same as the rolls which are published in final form, except that they are not guaranteed for accuracy. These dummy rolls are then checked and corrected. The final rolls are usually printed in July for availability in August.

The technical staff of the Valuation Division takes to the field again sometime in August, although some appraisal work is begun in July.

From this it is clear that, for the most part, the same personnel is responsible for both the field work and the office work, with the former operations constituting the major activity in the seven-month period from August to March and the latter constituting the major activity from March to August.

Conclusions

This explanation of public utility assessment began with the unit value of the utility enterprise as this value was determined by calculation, by judgment, and by discussion. It moved from this point through the intricacies of the calculations themselves, treating in turn the computation of the cost evidences, the earnings evidences, and the stock and debt evidences. In each of these cases an attempt was made to carry the explanation back to the basic data used in the calculations and to indicate, where necessary, the procedures followed by the Valuation Division in the manipulation of these data. The most recent step has been the explanation of the distribution of the unit value to the various taxing jurisdictions and the classification by types of property as required by law. Thus, although many of the details have been omitted, the explanation has covered the entire assessment process. In the following chapters a more complete explanation of these same processes is set forth for the actual computations which are followed in determining the assessed value of the utility enterprises selected for study in this report.

CHAPTER X

THE VALUATION OF TELEPHONE AND TELEGRAPH COMPANIES BY THE STATE BOARD OF EQUALIZATION

INTRODUCTION

The purposes of the present chapter were set forth in the introductory remarks to Chapter IX. It was stated at that point that the general explanation of the valuation process currently applied to public utility enterprises within the State, which explanation comprised the bulk of Chapter IX, would be followed by an analysis of this process as it is specifically applied to the six public utilities in the sample chosen. To fulfill this purpose, a series of exhibits has been developed for each of these companies and is presented in this and succeeding chapters. Since it is still the purpose here to describe the techniques actually used by the Valuation Division rather than to develop a critical analysis or to show alternative methods of determining public utility value, the exhibits are adaptations of the work sheets of the Valuation Division. Indeed, in some cases the exhibits represent only slight modifications of the work sheets.

The general outline of the explanation is essentially the same as that used in the previous chapter. For each of the companies the explanation begins with the unit value of the operative property that is taxable within California and indicates as fully as possible how the various evidences of value were used in arriving at this unit value. From this point, the explanation proceeds to the computation of the evidences of value themselves and to the detail that supported the various calculations made by the Valuation Division. The explanation is carried to the point of the ''basic'' data and provides as complete a record of the unit value determination as is possible in a report of this character. For each company the complete set of exhibits shows the determination of the unit value first for the assessment period ending in March, 1951, and then for the assessment period ending in March, 1952. The exhibits are numbered consecutively by company. The lines and columns of the exhibits are numbered for easy reference in the text. It will be made clear in the textual explanation that the exhibits for any one company are closely related to each other, in the sense that the figures used in one exhibit are derived from one or several of the exhibits that follow. Thus, any one of these exhibits (at least for the assessment period in question) may be omitted only at the expense of breaking the thread of the explanation. As indicated, the sequence of both exhibits and explanation is from the unit value to the ''basic'' data.

Not all of the statistical material which appears in the records of the Valuation Division is presented in the exhibits which follow. Some of the information is in the nature of supplementary data and appears not to be an integral part of the valuation process. In such cases the data are omitted, although they were explored in some detail in the investigation. In other cases, the information, although relevant, is simply too voluminous to permit its inclusion in its original form. In some of these cases, the simplification for purposes of these chapters is in terms of a condensation of the data, while in other cases, it is in terms of a sampling of representative data. In all cases, an attempt is made to explain the nature of the amendment in the accompanying text.

The determination of the unit value is first illustrated for all of the companies and no attempt is made to show how this unit value is allocated to the taxing units within the State. The allocation process is treated as a separate issue and is explained in a summary way in Chapter XIII. In this latter chapter the sequence of the explanation is from the assessment rolls that are transmitted to the counties by the State Board of Equalization as prescribed by law back to the unit value.

The textual material associated with the exhibits has as its primary purpose the explanation of the mechanics of the exhibits themselves and of the manner in which the several exhibits for one company are related to one another. In addition, however, an attempt is made to call attention to any differences in the techniques applied to different companies and to the changes in techniques as between 1951 and 1952. Neither of these issues was treated in any detail in Chapter IX. It is nevertheless the case that the exhibits are allowed to speak for themselves as much as possible. This, of course, is a useful technique only if the exhibits are considered to be illustrative of the general operations discussed in the previous chapter. In other words, the explanations of the present chapter are incomplete without the explanations of Chapter IX. In all cases an attempt has been made to simplify the exhibits and the explanations and yet to avoid doing violence to essential steps of the valuation process.

It may be assumed without great damage that the *explanatory* material in the present chapter and the two following chapters is restricted to the discussions of the Pacific Telephone and Telegraph Company (for both 1951 and 1952). The remaining sections are primarily useful for *reference* purposes in the critical analysis of Chapter XIV, and, of course, for the information they contain regarding the companies themselves. With some exceptions, however, the explanation of the valuation process *per se* may be said to be complete at the end of the discussion of the valuation of the Pacific Telephone and Telegraph Company for 1952.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT II

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION
(California Only)

1951

	Type of Property	*Historical Cost New* *(1)*	*Ratio* *(2)*	*Reproduction Cost New* *(3)*	*Condition (Percentage)* *(4)*	*Historical Cost New Less Depreciation* *(5)*	*Reproduction Cost New Less Depreciation* *(6)*
1	Plant and equipment						
2	Land in service	$8,728,209	---	$6,700,000	100	$8,728,209	$6,700,000
3	Land held for future use [a]	914,478	---	900,000	100	914,478	900,000
4	Other held for future use	89,064	1.50	133,596	75	66,798	100.197
5	Additions and betterments, 1948, gross	176,969,822	1.05	185,818,313	95	168,121,331	176,527,397
6	Additions and betterments, 1949, gross	154,618,505	1.03	159,257,060	97	149,979,950	154.479.348
7	Additions and betterments, 1950, gross [b]	116,876,063	1.00	116,876,063	99	115,707,302	115,707,302
8	Other	518,205,847	1.75	906,860,232	68–66	352,379,976	598,527,753
9	Total plant and equipment	$976,401,988		$1,376,545,264		$795,898,044	$1,052,941,997
10	Construction work in progress—land	$331,543	---	$300,000	100	$331,553	$300,000
11	Construction work in progress—other	10,554,139	1.00	10.554,139	100	10,554,139	10,554,139
12	Materials and supplies	13,358,199	1.00	13.358.199	90	12,022,379	12,022,379
13	Total to here	$1,000.645,869		$1,400.757,602		$818,806,105	$1,075,818,515
14	Miscellaneous physical property						
15	Land	$101,024	---	$100,000	100	$101,024	$100,000
16	Other	39,449	1.50	59.174	75	29,587	44,381
17	Total miscellaneous physical property	$140,473		$159,174		$130,611	$144,381
18	Total owned, state-assessed	$1,000,786,342		$1,400,916,776		**$818,936,716**	**$1,075,962,896**

NOTES: [a] Includes $39,750 in Account No. 139—"Other Deferred Charges."
[b] Additions minus right of way, etc.

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

Column 2 of Exhibit II indicates the ratio applied to the historical cost figures to bring them up to the currently prevailing costs of each type of property. Thus, column 2 represents the ratio which current costs bear to the costs that prevailed when the various items of property were added to the utility system. They do, of course, represent *average* relationships, in the index number sense. This is particularly true for line 8, column 2, for the specific items of property included in this ''Other'' category were, in fact, added to the utility system at markedly different points of time and ''factored up'' to 1947. The additions and betterments for 1950 are given a ratio of 1.00, on the assumption that the costs of these most recently added items have not changed since their introduction. As pointed out earlier, this is the same as the assumption that all of the items were added immediately prior to the lien date of 1951, allowing no time for cost changes between their addition to the system and their valuation for tax purposes. This is clearly an incorrect assumption, for it may be supposed that at least some of these items were added early in 1950. It is equally clear, however, that the examination of cost changes *within* the year would needlessly complicate the process. The assumption is thus a simplifying assumption and does not pretend to absolute reality. The figure of 1.03 which appears in line 6, column 2 (additions and betterments made during 1949) indicates that the level of costs of the items which comprise these additions and betterments rose, on the average, three percent between 1949 and 1950. Similarly, the figure of 1.05 in line 5, column 2 (additions and betterments made during 1948) indicates that the level of costs of the items which comprise these items, on the average, rose five percent between 1948 and 1950. The figure of 1.75 which appears in line 8, column 2 (''Other'') indicates that the cost of the items that were part of the utility system prior to 1948 and which have not since been retired rose, on the average, 75 percent from the years in which they were added to 1950. The same explanation applies to the figure of 1.50 in line 4, column 2 (''Other Held for Future Use'').

The ratio for construction work in progress (line 11, column 2—''Other'') is always considered to be 1.00, for it is assumed that these costs have been incurred so recently that they are, to all intents and purposes, the same as at present. The same thing is true of the ratio figure for Materials and Supplies (line 12, column 2) which also is always taken to be 1.00. The ratio applied to the ''Other'' category under the heading of ''Miscellaneous Physical Property'' (line 16, column 2) is determined, as with other similar items, by taking the average increase in costs over the period of time from the introduction of the property to the present.

Perhaps the most notable feature of column 2 is the absence of any ratio figures for any of the land items of property (lines 2, 3, 10, and 15). This omission indicates that the land items are not subjected to the "factoring up" process by the index number device, but instead are subjected to periodic field appraisals or to other substitute techniques in the years in which such appraisals are not made.

Column 3 of Exhibit II shows reproduction cost new of the several categories of property. In all cases except those which involve land, the figures in this column are obtained merely by multiplying the historical cost figures of column 1 by the ratio figures of column 2. The figures for land in column 3 are determined as twice last year's assessed value plus the costs of any additions and minus the costs of any retirements, and the whole adjusted for any reappraisals of the property completed in the past year.

The figures in column 4, Exhibit II show the condition percent factor for each of the property categories. This is, in other words, the column that indicates the depreciation element. It will be noticed that here, too, the land items are in a unique category, for in every case the condition is assumed to be 100 percent. This, of course, comes directly out of the assumption made by the Valuation Division that land is a nondepreciable property. The only other 100 percent figure is that for "Construction Work in Progress—Other" (line 11, column 4). This is the case because of the newness of the property—because, indeed, the property is not yet fully constructed. It seems fair to assume that, in this latter case, any depreciation which may have taken place during the process of construction is of an insignificant magnitude. In the additions and betterments group the smallest amount of depreciation (the highest condition percent figure) is recorded for that property most recently added to the system (line 7, column 4). While it would seem just as sensible to consider depreciation on such property to be zero as it is to consider the changes in the costs of the property to be zero, the Valuation Division did, in fact, allow for a 1 percent depreciation for the 1950 additions and betterments. The fact that depreciation is correlated with the length of time the property has been in service is indicated in column 4 by the fact that the condition percent for the additions and betterments of 1949 is lower than that for 1950, while that for 1948 is still lower (lines 5, 6, and 7 of column 4).

One other item in column 4 requires further explanation, viz., the dual condition percent applied to the "Other" category on line 8. This, however, is more easily explained as part of the explanation of columns 5 and 6. Columns 5 and 6 of Exhibit II are determined by a process of simple multiplication. The figures in column 5 represent a multiplication of the figures in column 1 and the figures in column 4 ("Historical Cost New" multiplied by the "Condition Percent" equals "Historical Cost New Less Depreciation"). The figures in column 6 represent a multiplication of the figures in column 3 and the figures in column 4 ("Reproduction Cost New" multiplied by the "Condition Percent" equals "Reproduction Cost New Less Depreciation"). On line 8, the figure in column 5 is determined by multiplying the figure in column 3 by 68 percent; and the figure in column 6 is determined by multiplying the figure in column 3 by 66 percent. This two-fold multiplication is required by the fact that it is necessary to apply the factor for cost changes to the depreciation itself. In other words, in terms of historical costs, the property has depreciated by 32 percent, while, in terms of reproduction costs, the property has depreciated by 34 percent.

Since it is historical cost new less depreciation and reproduction cost new less depreciation that are considered by the Valuation Division to be the cost evidences of value, all of the items in columns 5 and 6 of Exhibit II are added and the totals transferred to Exhibit I. Thus, line 18, column 5 of Exhibit II becomes line 1, column 1 of Exhibit I; and line 18, column 6 of Exhibit II becomes line 2, column 1 of Exhibit I. It is important to note that the theory adopted by the Valuation Division technically requires the consideration of only the *operating* property of the utility system in the determination of the unit value. This would mean that the totals on line 13, columns 5 and 6 (labeled "Totals to Here") should be transferred to Exhibit I. In the case of some other companies this was, indeed, the case. The Valuation Division failed to do this for the Pacific Telephone and Telegraph Company in this year only because the volume of such miscellaneous physical property (nonoperative property) was small relative to the total volume of the company's property. It is still hard to understand why this was done, however, for it is certainly no more difficult to transfer one set of figures than another and it would seem that there are some virtues in consistency in these matters, even though the amounts of value involved are small.

It is clear that three columns of Exhibit II represent "known" elements as far as this exhibit is concerned, and that all of the other columns merely represent "computed" figures. The three columns representing the "known" elements are, of course, columns 1, 2, and 4—Historical Cost New, the ratio for cost changes, and the Condition Percent. In a full exploration of this matter, each of these columns should be traced to its source. However, as indicated in Chapter IX, the process of computing the ratio and the condition percent (at least for some of the property items) involves a great mass of data which could hardly be reproduced here. Sample costing tables and condition percent tables are, however, reproduced in Appendix A, with brief notes as to their meaning and their use. Appendix A also includes a bibliographical reference to the various studies used by the Valuation Division in compiling its evidence of cost changes.

The one remaining column of "known" elements in Exhibit II, namely, that for historical cost new, is, however, traced one step further back. The figures for historical cost new are reported to the Valuation Division by the company in the summary control statement. This statement (in revised form) is reproduced as Exhibit III.

Exhibit III shows the various types of property of the Pacific Telephone and Telegraph Company and the historical costs associated with each type as these appear in the accounts of the company as of December 13, 1950. The grouping by columns is somewhat different in Exhibit III than that which appears in the original summary control. In the original, column 2 is further divided into two other columns labeled ''Reported with Items of Property'' (in the tangible property list) and ''Used in the Derivation of Unit Costs.'' Since this distinction is not important for present purposes, the two columns have been combined.

The total historical cost new of the physical property of the Pacific Telephone and Telegraph Company within the exterior bounds of California is reported in line 35, column 6 as $1,027,962,700. Some of this property, however, is in the form of licensed motor vehicles which, for purposes of the property tax assessment, is nontaxable. Still other items of property are located on property ceded to the Federal Government and are consequently nontaxable. These and other nontaxable items are included in columns 4 and 5, and are listed by the types of property involved. A subtraction of column 4 and column 5 from column 6 leaves a total of taxable property of $1,000,786,342 (line 35, column 3). It may immediately be pointed out that it is this total that is transferred to line 18, column 1 of Exhibit II as the total historical cost new of all physical property owned by the company and subject to state assessment.

The total just reported is further divided into land and other property and the totals of these items are shown in line 35, columns 1 and 2, respectively.

The various property items listed in Exhibit III need very little explanation. It should be noted that the costs of acquiring the ''Right of Way'' are included in the nontaxable category (line 1, column 5). This represents the judgment of the Valuation Division that this is a nontaxable item. Lines 12 to 27, inclusive, represent the transmission system of the company, with each

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT III

DETAIL OF THE COMPUTATION OF COST EVIDENCE: SUMMARY CONTROL
(California Only)

1951

		Assessed by State			*Not Assessed by State*		
	Items of Property	*Land (1)*	*Other (2)*	*Total (3)*	*Licensed Motor Vehicles (4)*	*Other (5)*	*Total Within Exterior Bounds of California (6)*
1	Right of way	--------	--------	--------	--------	$4,571,698	$4,571,698
2	Land	$8.728.209	--------	$8,728,209	--------	28,822	8,757,030
3	Buildings	--------	$105,395,143	105,395,143	--------	3,190,173	108,585,316
4	Central office equipment	--------	301,544,910	301,544,910	$43,513	121,133	301,709,556
5	Telephone and telegraph stations						
6	Station apparatus	--------	$63,362,692	$63,362,692	--------	$296,609	$63,659,301
7	Station installations	--------	47,273,497	47,273,497	--------	152,835	47,426,333
8	Drop and block wires	--------	23,869,419	23,869,419	--------	7,067	23,876,486
9	Private branch exchange	--------	33,954,515	33,954,515	--------	761,254	34,715,770
10	Booths and special fittings	--------	4,956,740	4,956,740	--------	127,048	5,083,788
11	Total telephone and telegraph stations	--------	$173,416,864	$173,416,864	--------	$1,344,814	$174,761,678
12	Pole lines—exchange	--------	$48,027,371	$48,027,371	--------	$356,943	$48,384,314
13	Pole lines—toll	--------	15,217,344	15,217,344	--------	(14,156)	15,203,188
14	Aerial cable—exchange	--------	96,106,002	96,106,002	--------	96,499	96,202,500
15	Aerial cable—toll	--------	10,862,163	10,862,163	--------	22,544	10,884,707
16	Underground cable—exchange	--------	75,172,153	75,172,153	--------	61,215	75,233,367
17	Underground cable—toll	--------	20,675,323	20,675,323	--------	69,269	20,744,592
18	Buried cable—exchange	--------	4,156,896	4,156,896	--------	23,663	4,180,559
19	Buried cable—toll	--------	16,577,650	16,577,650	--------	46,487	16,624,137
20	Submarine cable—exchange	--------	1,314,390	1,314,390	--------	197,796	1,512,185
21	Submarine cable—toll	--------	1,177,928	1,177,928	--------	219,514	1,397,441
22	Aerial wire—exchange	--------	11,277,614	11,277,614	--------	2,336	11,279,950
23	Aerial wire—toll	--------	11,948,854	11,948,854	--------	7,647	11,956,501
24	Underground conduit—exchange	--------	48,448,405	48,448,405	--------	7,690	48,456,095
25	Underground conduit—toll	--------	9,656,870	9,656,870	--------	146,858	9,803,728
26	Furniture and office equipment	--------	11,823,567	11,823,567	--------	88	11,823,655
27	Vehicles and other work equipment	--------	3,870,790	3,870,790	$14,987,407	119	18,858,316
28	Subtotal	$8,728,209	$966,670,237	$975,398,446	$15,030,920	$10,501,149	$1,000,930,515
29	Telephone plant under construction	$331,543	$10,554,139	$10,885,681	--------	$956,612	$11,842,293
30	Property held for future telephone use	874.728	89,064	963,792	--------	37,478	1,001,270
31	Telephone plant acquisition adjustment	--------	--------	--------	--------	113,478	113,478
32	Miscellaneous physical property	101.024	39,449	140,473	--------	535,693	676,166
33	Materials and supplies	--------	13,358,199	13,358,199	$280	748	13,359,227
34	Other deferred charges (miscellaneous)	39.750	--------	39,750	--------	--------	39,750
35	Grand total	**$10,075,253**	**$990,711,088**	**$1,000,786,342**	**$15,031,200**	**$12,145,159**	**$1,027,962,700**

SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1951.

type of property divided between toll service and exchange service. This distinction is made according to the accounting regulations of the Federal Communications Commission and the California Public Utilities Commission.

Each of the figures which appears in column 1 of Exhibit II can be found in the first three columns of Exhibit III. Since the property groupings are somewhat different in the two exhibits, however, it seems appropriate to show how the transference takes place. This is shown in tabular form below.

To Exhibit II, Column 1	*From Exhibit III*
Line 2	Line 2, column 1
Line 3	Line 30 plus line 34, column 1
Line 4	Line 30, column 2
Lines 5, 6, 7, and 8	Line 28, column 2 (the sum of lines 3 to 27, inclusive, of column 2)
Line 10	Line 29, column 1
Line 11	Line 29, column 2
Line 12	Line 33, column 2
Line 15	Line 32, column 1
Line 16	Line 32, column 2
Line 18	Line 35, column 3

Any further check on the figures reported in the summary control would require an extensive audit of the records of the company. Needless to say, the exploration was not carried into this area. As far as Exhibit II is concerned (and consequently as far as the cost evidence on Exhibit I is concerned), the explanation has been carried back to, but not including, the records of the company, the data used to determine the condition percent of the property, and the appraisal techniques used by the Valuation Division to determine the current "value" of the land items. These are, to be sure, important areas of investigation, but their investigation was made impossible by the limitations of time and resources.

The Computation of the Earnings Evidence

Exhibit I shows four figures for the earnings evidence on line 3. Exhibits IV and V show, in outline, the determination of these four capitalized earnings figures. Exhibit IV is that of immediate interest, while Exhibit V provides some of the detail that lies behind Exhibit IV.

On line 2 of Exhibit IV are shown the net operating income figures for the five-year period used in the computations. The determination of the net income figures for 1950 is shown in Exhibit V, but it will be immediately clear that the figures on line 2 of Exhibit IV are net of depreciation charges of the company. As explained in Chapter IX, however, the Valuation Division takes account of the depreciation factor in the capitalization rate, on the assumption that its own calculations of the expected future life of the company's property are likely to be more accurate than

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT IV

COMPUTATION OF EARNINGS EVIDENCE

(System and California)

1951

	Items	*1950* *(1)*	*1949* *(2)*	*1948* *(3)*	*1947* *(4)*	*1946* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$58,426,819	$40,962,944	$34,678,004	$17,773,537	$23,984,238	--------	
3	Depreciation	41,713,476	40,133,933	34,623,324	29,983,761	26,906,491	--------	
4	Net before depreciation	**$100,140,295**	**$81,096,877**	**$69,301,328**	**$47,757,298**	**$50,890,729**	**$69,837,305**	
5	Expectancy: 18 years							
6	Capitalization rates:							
7	(1) 5.000% + 3.555% annuity = 8.555%.							
8	(2) 5.500% + 3.392% annuity = 8.892%.							
9	Value computation							
10	Period	*1-Year Basis, 1950*				*5-Year Average*		
11	Capitalization rate	8.555%		8.892%		8.555%		8.892%
12	Net income before depreciation	$100,140,295		$100,140,295		$69,837,305		$69,837,305
13	Capitalized income	$1,170,546,990		$1,126,184,154		$816,333,197		$785,394,793
14	Adjustments:							
15	Working capital (—)	22,096,321		22,096,321		19,395,412		19,395,412
16	System earning value including motor vehicles	$1,148,450,669		$1,104,087,833		$796,937,785		$765,999,381
17	California earning value including motor vehicles (apply 75.9017%)	$871,693,581		$838,021,435		$604,889,323		$581,406,551
18	California earning value excluding motor vehicles (apply 97.35%)	**$848,593,700**		**$815,813,872**		**$588,889,753**		**$565,999,276**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

the annual depreciation charges made on the company's books. As a result, it is necessary to add back the depreciation charges *before* the capitalization rates are applied. These depreciation charges are shown on line 3 of Exhibit IV for each of the five years, and the resulting figures for net operating income before depreciation are shown on line 4.

As shown on line 5 of Exhibit IV, the Valuation Division considers the expected future life of the operating property of the Pacific Telephone and Telegraph Company to be 18 years as of 1951. This figure is based upon the same data which are part of the extensive reconstruction cost study and upon the judgment of the officials of the Valuation Division with respect to what has happened to the system since the last such study. It is clearly impossible to go behind this figure in the present investigation, in part because of the mass of documentation that would be required, and in part because of the lack of adequate documentation for the most recent years of the company's history.

The capitalization rates are determined as described in Chapter IX. The "basic" rates of 5 percent and 5½ percent are assumed rates and the annuity factor is a product of a simple mathematical computation to determine the amount of an annuity that earns 5 percent and 5½ percent for a period of 18 years.

Lines 11 and 12 of Exhibit IV are merely repetitions of figures already computed and are inserted here for easy reference. Line 12, for example, is a repetition of the relevant figures that appear on line 4. The figures of line 13 are determined merely by dividing the figures of line 12 by the figures of line 11.

Only one adjustment to the capitalized income figures was made for the Pacific Telephone and Telegraph Company for the year 1951. This was the adjustment for working capital shown on line 15 of Exhibit IV. It is certainly true that there should have been an additional adjustment for land reversions, for, as is always the case the Valuation Division's calculations, the land items were not included in the computation of the 18-year expected future life of the company. The absence of this item as a positive adjustment indicates an inaccuracy in the computations for this year.

The remaining items in Exhibit IV are self-explanatory. It is still necessary, however, to show the determination of the two percentage figures which are indicated on lines 17 and 18—the one to account for property outside California and the other to account for nontaxable property within California. The determination of these figures is shown in Exhibit X.

The work sheets of the Valuation Division also show the five-year average earnings figures as of the *previous* year, but since these figures appear only as supplementary information, they are omitted from Exhibit IV.

It is the figures that appear on line 18 of Exhibit IV that are transferred to Exhibit I as the representatives of earnings in the final determination of the unit value.

Exhibit V reproduces the relevant information from the income statement of the company as this appears in the Stockholders' Report for the year 1950. The only substantive difference between Exhibit V and the original income statement is that the latter shows

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT V

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE FOR THE SYSTEM
(Income Statement)

1951

	Items	*Amounts* (1)	(2)	(3)
1	Local service revenues	$258,260,888		
2	Toll service revenues	153,307,240		
3	Miscellaneous revenues	21,035,626		
4	Less uncollectible operating revenues	1,299,441		
5	Total operating revenues		$431,304,313	
6	Current maintenance	$94,997,928		
7	Depreciation expense	41,713,476		
8	Traffic expense	81,142,745		
9	Operating rents	2,574,951		
10	General and miscellaneous expenses	46,964,778		
11	Commercial expenses	39,475,452		
12	Total operating expenses		306,869,330	
13	Net operating revenues			$124,434,983
14	Federal taxes on income	$28,160,000		
15	Other operating taxes	37,848,164		
16	Total operating taxes			66,008,164
17	Net operating income			**$58,426,819**

SOURCE: Income Statements (System), Annual Report of Pacific Telephone and Telegraph Company, 1951.

certain additions to and subtractions from the net operating income figure to account for nonoperating expenses and nonoperating receipts. Since the Valuation Division is interested only in the operating characteristics of the company for the purpose of the unit value determination, these additional items are appropriately omitted from Exhibit V.

It is the data of Exhibit V that are basic to the computations indicated on Exhibit IV. Line 7, column 1 of Exhibit V becomes line 3, column 1 of Exhibit IV. The remaining figures of line 3 of Exhibit IV are, of course, obtained from sheets that are similar to Exhibit V but which apply to the earlier years. Similarly, line 17, column 3, Exhibit V is transferred to line 2, column 1 of Exhibit IV. It should be noted that the net income used for capitalization purposes is net of the operating taxes of the company, at least for the computation of the 1951 valuation.

It was pointed out in Chapter IX that the working capital adjustment was determined by taking (roughly) the total operating expenses and dividing by 12, in other words, one month's average operating expenses. It now appears that the operating expenses used in this calculation exclude the year's depreciation expenses. Thus, line 12, column 2 of Exhibit V shows total operating expenses of $306,869,330, while line 7, column 1 of Exhibit V shows depreciation expenses of $41,713,476. The difference between these figures is $265,155,854. If this difference is divided by 12, the result is $22,096,321. It can be seen that this is the figure inserted in line 15, column 1 of Exhibit IV as the adjustment for working capital.

These, with the computation of the expected future life of the company and the determination of the capitalization rates, are all that are required for the earnings evidence computation.

The Computation of the Stock and Debt Evidence

Exhibit I contains two figures which indicate the stock and debt position of the company over the immediately past year and over the past five years. Exhibit VI shows the determination of these two figures while the details of the computation are shown in Exhibits VII, VIII, and IX.

Lines 1 to 21 inclusive of Exhibit VI show the computation of the stock and debt evidence for the calendar year of 1950. It can readily be seen that this portion of the exhibit is divided into two major sections, labeled "Debts" and "Assets Subtracted from Debts." Each of these sections, in turn, is divided into two parts, representing "Value Based on Sales" and "Value Based on Books." As described in Chapter IX and in the theoretical discussions which preceded it, *all* of the figures *should* be based on sales, that is, on data extracted from the market place. In view of this standard of theoretical desirability, and in view of the fact that no market data exist for some of the debt items, the figures which appear in the sections labeled "Value Based on Books" must be looked upon as expedient figures which do, nevertheless, leave something to be desired. In each case, the "books" referred to are the accounts of the company as these are represented in the balance sheet of the stockholders' report.

No particular problems of interpretation are involved as far as the "Debts" section is concerned. The subtotals listed on lines 4 and 7, column 3 are for convenience only and the figure in line 8, column 4 simply represents the total of all four items in this section. It is perhaps worth repeating that the figure of $1,170,159,690 for total debts is probably the closest thing to the true "unit value" of the company as a whole. Viewed in this light, the items listed in the following section appear in the role of adjustments to the unit value figure, i.e., adjustments made to make the data conform to the other evidences of value and to conform to the purpose of the Valuation Division to determine the "unit value" for the operative property only.

The figure in line 11, column 2 is listed on the work sheets of the Valuation Division under the heading of "Value Based on Sales." This label is incorrectly applied in this case, however, for the figure represents merely the amount of securities of other companies held by the Pacific Telephone and Telegraph Company as these are recorded on the books of the latter.

The only other difficulty that appears in this section is the deduction of the materials and supplies item in line 15, column 1. The figure for total current assets (line 14, column 1) includes the amount of materials and supplies. It is assumed that all current assets *except* materials and supplies are legitimate deductions from the total debts. These materials and supplies are considered to be part of the operating property of the company and therefore subject to valuation under the unit rule.

Line 19, column 4 shows the total system stock and debt value of the operating property of the entire company, both within and beyond the boundaries of California and including motor vehicles. The remaining adjustments (lines 20 and 21) are designed to allocate this value first to California and then to the taxable property within California. The adjustments are identical to those applied to the earnings evidence at a comparable point in the calculations. The determination of the percentage adjustments is shown in Exhibit X.

The remaining portion of Exhibit VI (lines 22 to 31 inclusive) shows the determination of the five-year average stock and debt value. Line 27, column 1 is merely a repetition of line 19, column 4, and indicates that the average is computed before any of the allocating adjustments are made. The figures in lines 23 to 26 inclusive, column 1, are, of course, extracted from the work sheets of earlier years and relate to a comparable point in the calculations. Line 29, column 1 shows the simple average of the five yearly figures. To this the two allocating percentages are applied and the figure of $642,288,070 is determined as the California share excluding motor vehicles (etc.) for the five-year period (line 31, column 1).

The two figures which are transferred from Exhibit VI to Exhibit I are, of course, $810,603,745 (line 21, column 4) and $642,288,070 (line 31, column 1). These

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT VI

COMPUTATION OF STOCK AND DEBT EVIDENCE

(System and California)

1951

	Items	Amounts *(1)*	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on stock:				
3	Capital stock		$630,310,644		
4	Bonds		416,631,475	$1,046,942,119	
5	Value based on books:				
6	Current and accrued liabilities		$123,162,571		
7	Deferred credits		55,000	123,217,571	
8	Total debts				$1,170,159,690
9	Assets subtracted from debts				
10	Value based on sales:				
11	Securities		$602,141		
12	Value based on books:				
13	Current assets:				
14	Total	$77,014,967			
15	Deduct materials and supplies	17,716,464	59,298,503		
16	Prepaid accounts		11,882,371		
17	Deferred charges		1,340,000		
18	Total assets subtracted from debts				73,123,015
19	System stock and debt value including motor vehicles				**$1,097,036,675**
20	California stock and debt value including motor vehicles (apply 75.9017%)				**$832,669,486**
21	California stock and debt value excluding motor vehicles (apply 97.35%)				**$810,603,745**
22	5-year average stock and debt value:				
23	1946	$638,708,259			
24	1947	757,537,421			
25	1948	869,492,362			
26	1949	983,452,238			
27	1950	1,097,036,675			
28	Total	$4,346,226,955			
29	5-year average	**$869,245,391**			
30	California share including motor vehicles (apply 75.9017%)	$659,772,029			
31	California share excluding motor vehicles (apply 97.35%)	**$642,288,070**			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

become line 4, columns 1 and 3, and line 4, columns 2 and 4 respectively on Exhibit I.

The work sheets of the Valuation Division also indicate the account numbers which apply to the individual items which appear in Exhibit VI. These account numbers are those which appear in the company's report to the California Public Utilities Commission. This report is not included in the present group of exhibits, since the *figures* in the report apply to California operations only and are not directly used in the valuation process for tax purposes. As a result, the account numbers have also been omitted from Exhibit VI. Similarly, the work sheets of the Valuation Division show several other items on Exhibit VI, but since these did not apply to the Pacific Telephone and Telegraph Company for the 1951 valuation, they are omitted from Exhibit VI.

Exhibit VII shows some of the detail that lies behind the computations of Exhibit VI. This detail refers only to those debts of the company that are capable of being valued on the basis of market sales. Exhibit VII, in other words, refers only to lines 1 to 4 inclusive, of Exhibit VI.

In Exhibit VII the type of debt issue is listed on the left. It can be seen that the company's debt issue consisted of common stock, preferred stock, and five separate debenture issues as of December 13, 1950. The two stock issues are shown by the number of shares outstanding (lines 1 and 2, column 1) while the debentures are shown by the par value in dollars of each issue (lines 4 to 8 inclusive, column 2).

Column 3 of Exhibit VII shows the results of the analysis of market prices, for this column shows the average of the monthly high and low prices of all of the types of securities under discussion. The figures in this column are multiplied by the corresponding figures in columns 1 and 2 to derive the figures in column 4. The figure in line 9, column 4 is, then, the figure that is transferred to Exhibit VI as the total value based on sales (line 4, column 3 of Exhibit VI). By the same token, the subtotal that appears in line 3, column 4 of Exhibit VII is directly transferable to Exhibit VI as line 3, column 2.

While the figures of Exhibit VII were represented as the detail behind the figures of Exhibit VI, it may now be shown that the figures of Exhibit VIII are part of the detail behind the figures of Exhibit VII. More specifically, Exhibit VIII shows the derivation of the figures which appear in column 3 of Exhibit VII—the

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT VII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Value Based on Sales)

1951

	Issues	*Number of Shares Outstanding (1)*	*Par Value of Issue (2)*	*Average of Monthly High and Low Prices (3)*	*Computed Value (4)*
1	Common stock	4,879,467	--------	$104.4271	$509,548,588
2	Preferred stock	820,000	--------	147.2708	120,762,056
3	Subtotal				$630,310,644
4	30-year debentures—3¼-78	--------	$75,000,000	106.9479	80,210,925
5	35-year debentures—3⅛-83	--------	75,000,000	105.2344	78,925,800
6	40-year debentures—2¾-85	--------	75,000,000	100.3073	75,230,475
7	40-year debentures—2⅞-86	--------	75,000,000	102.5885	76,941,375
8	40-year debentures—3⅛-87	--------	100,000,000	105.3229	105,322,900
9	Total				**$1,046,942,119**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT VIII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Monthly High and Low Security Prices)

1951

			Common Stock (1)	*Preferred Stock (2)*	*Debentures*				
					3¼-78 (3)	*3⅛-83 (4)*	*2¾-85 (5)*	*2⅞-86 (6)*	*3⅛-87 (7)*
1	January	Low	$101.000	$145.000	$107.000	$105.875	$100.250	$103.000	$105.125
2		High	104.875	148.500	107.625	106.250	100.875	103.500	105.875
3	February	Low	102.750	144.000	107.250	105.750	100.375	103.375	105.125
4		High	104.750	147.000	107.750	105.875	100.875	103.875	105.750
5	March	Low	104.500	145.000	107.000	104.750	100.000	102.750	105.000
6		High	109.000	147.500	107.500	104.875	100.875	102.875	105.375
7	April	Low	106.750	145.500	107.000	104.750	100.000	102.375	105.000
8		High	111.000	147.000	107.000	105.125	100.500	102.875	105.500
9	May	Low	109.250	146.250	106.500	104.375	99.500	101.750	105.000
10		High	111.500	147.750	107.625	105.500	100.500	102.125	105.875
11	June	Low	104.500	146.500	107.000	104.750	99.250	101.750	105.000
12		High	111.500	149.000	107.125	105.500	100.125	102.250	106.500
13	July	Low	98.500	142.500	106.250	105.000	98.625	100.750	105.125
14		High	104.875	148.000	106.500	105.000	100.500	102.500	106.500
15	August	Low	100.750	146.500	106.375	105.500	100.500	102.625	104.875
16		High	103.750	151.000	107.250	106.000	101.375	103.500	105.875
17	September	Low	101.000	150.500	106.000	104.500	99.500	102.500	104.375
18		High	103.625	152.000	106.500	104.750	100.875	103.250	105.500
19	October	Low	101.000	147.000	106.250	104.500	99.750	101.875	104.250
20		High	104.375	150.500	107.000	104.750	100.750	102.750	105.375
21	November	Low	100.750	146.500	106.375	105.500	100.500	102.500	104.875
22		High	103.750	151.000	107.250	106.000	101.375	102.625	105.875
23	December	Low	99.250	143.000	107.125	105.000	99.875	102.250	104.750
24		High	103.250	147.000	107.500	105.750	100.625	102.500	105.250
25	Totals		$2,506.250	$3,534.500	$2,566.750	$2,525.625	$2,407.375	$2,462.125	$2,527.750
26	Average of monthly high and low prices		$104.4271	$147.2708	$106.9479	$105.2344	$100.3073	$102.5885	$105.3229

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

average prices of the various securities issued by the company. The construction of Exhibit VIII is extremely simple and needs little explanation. A separate column is reserved for each type of security outstanding. In the debenture group, the security is described by quoting its rate of interest and its maturity date (so that column 3 indicates debentures which pay 3¼ percent interest and which mature in 1978). For each of these securities a high price and a low price for each month are quoted. In all of these cases the prices listed are actual selling prices and not merely ''bid'' prices. For the Pacific Telephone and Telegraph Company in this year, all of the prices are those which obtained in the New York market. Each of these columns is totaled and the totals divided by 24—the number of items appearing in each column. The results are shown on line 26 of Exhibit VIII as the ''Average of Monthly High and Low Prices.'' It is the figures of line 26 that are transferred to Exhibit VII and placed against the appropriate security in column 3.

Up to this point in the explanation only those figures appearing in Exhibit VI which are classified as ''Debts —Value Based on Sales'' have been tracked down to what are considered here to be the ''basic'' data. The remaining figures in Exhibit VI must now be examined. All of these figures (at least down to line 19 of Exhibit VI) are based upon the books of the company (in spite of the label of line 10). It is therefore necessary only to show how these figures are selected from the balance sheet of the company for the calendar year 1950. As a result, Exhibit IX is simply a slightly revised version of the balance sheet as this appears in the stockholders' report.

The first two major items on the liabilities side of the balance sheet are, of course, omitted from the section of Exhibit VI which deals with value based on books. This must be the case since these items, viz., the capital stock and the funded debt items, are valued according to market data (see Exhibits VII and VIII and the accompanying explanations). The current and accrued liabilities (lines 13 to 21 inclusive, Exhibit IX) are transferred without omission or adjustment to Exhibit VI. Thus, the figure of $123,162,571 which appears on line 21 of Exhibit IX becomes line 6, column 2 of Exhibit VI. Only one other item on the liabilities side of the balance sheet is considered in the valuation process. This is the ''Other Deferred Credits'' item that appears on line 24. As described in Chapter IX, however, this is not taken at its full book value, for it is assumed that some of the specific items which comprise this account are not legitimately considered to be indicative of the value of the enterprise. Some of the items which appear in this account were listed in Chapter IX for illustrative purposes. In the present case, the ''Other Deferred Credits'' item was transferred to Exhibit VI at an arbitrary figure of 25 percent (rounded). Hence the figure of $55,000 which appears in line 7, column 2 of Exhibit VI.

None of the three remaining items on the liabilities side of the balance sheet is considered in the valuation process. It is assumed that both the ''Unextinguished Premium on Funded Debt—Net'' (line 23) and the ''Unappropriated Earned Surplus'' (line 27) are included in the market prices of the company's securities and that a further inclusion would consequently involve double counting of these items. The ''Depreciation Reserve'' (line 26) is, in a sense, an element of the physical property that is being valued and, in any event, does not represent a ''real'' liability of the company.

The items which appear on the assets side of the company's balance sheet are, of course, included in Exhibit VI under the label of ''Assets Subtracted from Debts.'' In comparing Exhibits VI and IX, however, the first thing that will be noticed is the fact that all of the items (except one) listed under the heading ''Plant and Other Investments'' on the balance sheet are omitted from Exhibit VI. The reason for this omission is obvious. For it is these items that make up the operating property of the utility system and that are, consequently, the objects of the unit valuation. The one exception is the item on line 10 of Exhibit IX, ''Other Investments.'' This represents the securities of other companies held by the Pacific Telephone and Telegraph Company. As such, the item represents nontaxable assets. The figure of $602,141 for this item is transferred directly from the balance sheet to line 11, column 2 of Exhibit VI. Although logic would require that these securities be valued at market prices rather than at the figure at which they are carried in the books of the Pacific Telephone and Telegraph Company, in this case they represent (for the most part) the stock of a wholly owned subsidiary for which no market quotations are available. Since the Valuation Division declares as its purpose the valuation (under the unit rule) of operating property only, there would be good reason for a further deduction of the item on line 9 of Exhibit IX, ''Miscellaneous Physical Property.'' Once again, however, the Valuation Division appears to have neglected this item on the grounds of its insignificance. To be sure, the figure on line 10 is even smaller than the figure on line 9, but the former *must* be deducted because of its nontaxable reference, while, in the case of the latter it is merely a question of valuing the property under the unit rule or apart from the unit rule.

All of the current assets (lines 12 to 18 inclusive) are accounted for in Exhibit VI. Line 18 of Exhibit IX, showing total current assets, is transferred to line 14, column 1 of Exhibit VI. The materials and supplies are added back by subtracting them from the total current assets. Thus, line 17 of Exhibit IX becomes line 15, column 1 of Exhibit VI.

All of the prepayments are included in this section of Exhibit VI, as indicated by the fact that line 20 of Exhibit IX is transferred to line 16, column 2 of Exhibit VI. Line 21 of Exhibit IX, however, is completely omitted. The treatment of ''Other Deferred Charges'' (line 22, Exhibit IX) is much the same as the treatment of its opposite number on the liabilities side, for it is transferred to Exhibit VI at an arbitrary percentage of its balance sheet figure. In the present case this is 40 percent. This item then becomes line 17, column 2 of Exhibit VI.

All of the items in the Consolidated Balance Sheet have now been accounted for in the explanation and each of the items which appears in Exhibit VI has been

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT IX

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1951

		(1)	*(2)*	*(3)*
1	**ASSETS**			
2	Plant and other investments			
3	Telephone plant			
4	Telephone plant in service	$1,320,830,738		
5	Telephone plant under construction	18,882,250		
6	Property held for future telephone use	1,725,788		
7	Telephone plant acquisition adjustment	138,985		
8	Total telephone plant		$1,341,577,761	
9	Miscellaneous physical property		922,576	
10	Other investments (principally securities)		602,141	
11.	Total plant and other investments			$1,343,102,478
12	Current assets			
13	Cash		$8,040,387	
14	Special cash deposits		256,240	
15	Working funds		282,070	
16	Accounts receivable		50,719,806	
17	Material and Supplies		17,716,464	
18	Total current assets			$77,014,967
19	Prepayments and deferred charges			
20	Prepayments		$11,882,371	
21	Discount on capital stock		4,817,811	
22	Other deferred charges		3,351,742	
23	Total prepayments and deferred charges			$20,051,924
24	Total assets			**$1,440,169,369**

		(1)	*(2)*
1	**LIABILITIES**		
2	Capital stock		
3	Common stock outstanding	$487,946,700	
4	Preferred stock outstanding	82,000,000	
5	Total capital stock		$569,946,700
6	Funded debt		
7	30-year 3¼ debentures due March 1, 1978	$75,000,000	
8	35-year 3⅛ debentures due Sept. 15, 1983	75,000,000	
9	40-year 2¾ debentures due Dec. 1, 1985	75,000,000	
10	40-year 2⅞ debentures due Oct. 1, 1986	75,000,000	
11	40-year 3⅛ debentures due Oct. 1, 1987	100,000,000	
12	Total funded debt		400,000,000
13	Current and accrued liabilities		
14	Notes payable to banks	$36,000,000	
15	Advance billing for service and customers' deposits	7,322,790	
16	Accounts payable and other current liabilities	40,139,512	
17	Accrued liabilities not due:		
18	Taxes	35,480,241	
19	Interest	2,990,028	
20	Dividend on preferred stock	1,230,000	
21	Total current and accrued liabilities		123,162,571
22	Deferred credits		
23	Unextinguished premium on funded debt—net	$3,828,461	
24	Other deferred credits	221,679	
25	Total deferred credits		4,050,140
26	Depreciation reserve		323,555,005
27	Unappropriated earned surplus		19,454,953
28	Total liabilities		**$1,440,169,369**

SOURCE: Pacific Telephone Company, Annual Report, 1950 traced back to the ''basic'' data. With this, the explanation of the stock and debt computation is complete, except for the explanation of the two allocating percentages which appear on lines 20 and 21 of Exhibit VI. This latter explanation is supplied in conjunction with Exhibit X presented below.

Computation of the Allocating Percentages

As indicated above, there are two percentage figures applied to both the capitalized income figure and the stock and debt figure to transform these into taxable values. The computation of both of these percentages is shown in Exhibit X. The first of these is designed to distinguish between the value of the company as a whole (the ''system'' value) and the value of the California portion of the company (''system'' value for California only). The second is designed to distinguish between that property within California that is taxable and that property within California that is nontaxable.

The results of the first computation are shown in line 6, column 5 of Exhibit X, where it is indicated that the California portion of the Pacific Telephone and Telegraph Company accounted for 75.9017 percent of the value of the entire operating structure of the company. Exhibit X also shows that this allocation is based upon a consideration of five factors, one of which represents costs (line 1), two of which represent certain measures of physical property (lines 2 and 3), one of which represents total operating revenue (line 4), and one of which represents net operating income (line 5). The technique of computation is a simple one. It consists merely of determining the ''system'' figure and the ''California portion'' figure for each of the factors, dividing the latter by the former to determine the percentage in California for each of the factors, giving each of the factors some more or less appropriate weight, and adding all of the weighted percentages. Line 1, for example, shows the book cost of the physical property (operative) of the company as of December 31, 1950, to be $1,360,078,816 for the entire company (column 1), and $1,000,746,592 for California (column 2). The California figure is shown to be 73.5800 percent of the total (column 3), and this factor (book cost) is given a weight of 20 percent (column 4). The figure of 14.7160 in column 5 is determined merely by multiplying the figure in column 3 by the weighting percentage of column 4. The same process is involved for each of the five factors considered. It should be noted, of course, that the figures in columns 1 and 2 of lines 2 and 3 are expressed not as dollar amounts but as the number of units of the type of property in question. It should also be noted that the first three factors apply to a *moment* of time—December 31, 1950, while the last two factors apply to a period of time—the calendar year 1950. In each case, the allocation of the particular factor to California is determined by the company itself under the accounting regulations of the Federal Communications Commission and the California Public Utilities Commission. The weights applied in column 4 are not determined by any mathematical formula but rather by the reasoning of the officials of the Valuation Division with respect to the logical importance of each of the factors.

Lines 7 to 9 inclusive of Exhibit X, column 2, show the determination of the taxable portion of the property located within the exterior boundaries of the State of California. Both of the figures used in the computation are obtained from the summary control statement of the company. Thus, the figure in line 7, column 2 of Exhibit X comes from line 35, column 6 of Exhibit III, while the figure in line 8, column 2 of Exhibit X comes from line 35, column 3 of Exhibit III. The computation of the 97.35 percent which appears in line 9, column 2 of Exhibit X involves simply the division of the line 8 figure by the line 7 figure.

The two percentage allocation figures so determined are then transferred to the work sheets which show the computation of the earnings and the stock and debt

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT X

COMPUTATION OF INTERSTATE ALLOCATION AND TAXABLE PROPERTY PERCENTAGES

1951

	Items	*The System* (1)	*California Portion* (2)	*Percentage in California* (3)	*Weight (Percentage)* (4)	*Weighted Percentage in California* (5)
1	Book cost of physical property (Dec. 31, 1950)	$1,360,078,816	$1,000,746,592	73.5800	20	14.7160
2	Total company stations (Dec. 31, 1950)	4,237,573	3,233,648	76.3090	10	7.6309
3	Total conductor miles (Dec. 31, 1950)	18,063,295 (Mi.)	14,323,448 (Mi.)	79.2959	20	15.8592
4	Total operating revenues (year 1950)	$431,304,313	$327,100,136	75.8398	10	7.5840
5	Net operating income (year 1950)	$58,426,819	$43,983,155	75.2791	40	30.1116
6	Total	--------	--------	---	100	75.9017
7	Total historical costs		$1,027,962,700			
8	Total owned, state-assessed		$1,000,786,342			
9	Taxable percentage		97.35%			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

evidences, Exhibits IV and VI, respectively. Thus, the percentage on line 6, column 5 of Exhibit X is transferred to line 17 of Exhibit IX and line 20 of Exhibit VI; while that on line 9, column 2 of Exhibit X is transferred to line 18 of Exhibit IV and line 21 of Exhibit VI.

The 10 exhibits presented above, and the textual material associated with them, is given as a ''complete'' explanation of the manner in which the Valuation Division of the State Board of Equalization determined the so-called ''unit value'' of the operating property of the Pacific Telephone and Telegraph Company as of the first Monday in March, 1951. With this explanation as a guide, it is possible to show the unit value determination for this same company for the following year (and for each of the five remaining companies examined in this study for both years) in a considerably abbreviated form. In all of the remaining illustrations, the exhibits are of a similar character to those presented above, and, as in the case of the Pacific Telephone and Telegraph Company for 1951, are represented as ''complete'' explanations. In the following cases, however, the textual explanation shows the processes of computation in note form only and emphasizes any differences in treatment as between companies or as between years.

THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY—1952

It was pointed out in Chapter IX that the Valuation Division made certain changes in its valuation techniques as between the 1951 valuations and the 1952 valuations. These differences now show up in specific detail in the case of the Pacific Telephone and Telegraph Company. For the Pacific Telephone and Telegraph Company there are three significant changes in the *content* of the computations and several less important changes in the *form* of the work sheets. Two of the changes in content relate to the earnings evidence and represent additional refinements in the capitalization process. These changes are naturally in evidence on the weighting sheet (Exhibit XI) although a full discussion of them is introduced in conjunction with Exhibit XIII. The third change in content takes the form of the application of a markedly different system of weighting the various evidences of value. This change, however, must not be taken to imply a more ''scientific'' system of weights in 1952 than in 1951. It is merely a *different* system of weights. This system will, of course, show up in Exhibit XI.

The System of Weighting the Evidences of Value

Exhibit XI is comparable to Exhibit I as described above. It is here that the several evidences of value are brought together, weighted in various ways, and used to indicate a unit value for the operative property (excluding money and leased property) of the company as of the first Monday in March. Exhibit XI shows, as before, the four basic evidences of value on lines 1 to 4 inclusive. Lines 6 to 10 inclusive show the five weighting systems that are applied in 1952. For easy comparison, the four systems used in 1951 and the five systems used in 1952 are presented in the following tabulation:

		1	*2*	*3*	*4*	*5*
1951	Historical cost	20	10	30	30	--
	Reproduction cost	10	10	30	10	--
	Earnings	50	40	30	40	--
	Stock and debt	20	40	10	20	--
1952	Historical cost	40	35	33	19	5
	Reproduction cost	5	5	1	1	5
	Earnings	40	40	33	40	45
	Stock and debt	15	20	33	40	45

This tabulation reveals that, in 1951 there was a tendency to give earnings a consistently high weight, to give stock and debt and historical cost evidences approximately equal attention (although, in the aggregate, considerably less attention than to earnings), and to give slightly less emphasis to reproduction cost. In 1952, on the other hand, stock and debt and earnings evidence are given approximately equal emphasis, historical cost is given somewhat less emphasis, and reproduction cost evidence is given purely token attention. However, it is as true for 1952 as for 1951 that the final unit value is determined rather more subjectively than is implied by the use of a weighting system.

The changes in the column headings for Exhibit XI (as compared with those of Exhibit I) represent two important changes in the methods of constructing the earnings evidence. In 1951, two capitalization rates are used, 5 percent and 5½ percent; while in 1952, only one capitalization rate is used, viz., 5½ percent. Nevertheless, there are still four figures to represent earnings in 1952. On line 3 of Exhibit XI, column 1 shows net income before depreciation on a one-year basis; column 2 shows net income before depreciation on a five-year average basis; column 3 shows net income before depreciation *and before income taxes* on a one-year basis; and column 4 shows net income before depreciation *and before income taxes* on a five-year average basis. The details of the computation of these separate figures are given in Exhibit XIII below. As before, two figures are shown for the stock and debt evidence (line 4); one figure is shown for historical cost new less depreciation (line 1); and one figure is shown for reproduction cost new less depreciation.

The range between the various high and low figures in the table is somewhat less for 1952 than for 1951. The highest of the ''basic'' figures on Exhibit XI is that for reproduction cost new less depreciation (line 2) at $1,213,112,426. The lowest of the ''basic'' figures is that for earnings capitalized before depreciation and before income taxes on a five-year average basis (line 3, column 4) at $642,730,179. The absolute difference between these two evidences is $570,382,247. The smaller of the two is only 52.9819 percent of the larger. This compares with a figure of 52.60 percent in the previous year. It is clear that, in both years, the difference between highest and lowest figures is great enough to make it extremely important to decide which of the evidences shall be emphasized in the valuation process. Within the earnings category itself, the figures range from a high of $941,880,288 (line 3, column 3)

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XI

COMPUTATION OF "SYSTEM" VALUE
(California Only)

1952

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 5½% Before Depreciation*		*Earnings Capitalized at 5½% Before Depreciation and Income Tax*		*Horizontal Averages (unweighted)*
		1-Year Basis (1)	*5-Year Average Basis (2)*	*1-Year Basis (3)*	*5-Year Average Basis (4)*	*(5)*
1	(H) Historical cost new less depreciation	$900,346,938	$900,346,938	$900,346,938	$900,346,938	--------
2	(R) Reproduction cost new less depreciation	1,213,112,426	1,213,112,426	1,213,112,426	1,213,112,426	--------
3	(E) Capitalized earnings	832,003,679	649,215,622	941,880,288	642,730,179	--------
4	(S) Stock and debt	873,442,742	722,898,582	873,442,742	722,898,582	--------
5	Unweighted average	$954,726,400	$871,393,400	$982,195,600	$869,772,000	$919,521,850
6	Weighted average: H = 40%; R = 5%; E = 40%; S = 15%	$884,612,300	$788,915,400	$928,562,900	$786,321,300	$847,102,975
7	Weighted average: H = 35%; R = 5%; E = 40%; S = 20%	883,267,000	780,042,900	927,217,600	777,448,800	841,994,075
8	Weighted average: H = 33%; R = 1%; E = 33%; S = 33%	872,042,900	762,043,300	908,302,200	759,903,100	825,572,875
9	Weighted average: H = 19%; R = 1%; E = 40%; S = 40%	865,375,600	732,042,600	909,326,200	729,448,500	809,048,225
10	Weighted average: H = 5%; R = 5%; E = 45%; S = 45%	873,123,800	723,124,300	922,568,200	720,205,900	809,755,550
11	Vertical averages	$888,858,000	$776,260,300	$929,695,450	$773,849,900	**$842,165,900**
12	System value for California, 1951	**$749,494,100**				
13	System value for California, 1952	**$820,000,000**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

to a low of $642,730,179 (line 3, column 4). This yields a difference of $2,999,150,109. The smaller of these earnings figures is only 68.2390 percent of the larger. Thus, even when it has been decided that a certain weight shall be placed upon earnings as one of the several evidences of value, it is still necessary to decide which of the several alternative methods of computing the earnings evidence shall be selected. In view of the markedly different results that are obtained by the several computational methods, it is easy to see that this decision is an important one.

As always, of course, the application of a system of weights in the averaging process somewhat reduces the range of ''uncertainty'' (although it must be emphasized once again that the weighting system itself is a thing of considerable ''uncertainty''). In the present case, the highest of the weighted figures is $928,562,900 (line 6, column 3), and the smallest is $720,205,900 (line 10, column 4). The absolute difference between these is $208,357,000 and the lower figure is 77.5613 percent of the larger.

The unit value finally chosen for 1952 is shown in line 13, column 1 as $820,000,000. Once again, this appears to be rather low if all of the figures on the weighting sheet are taken at their face value. The unit value is some $22 million below the average of all of the weighted figures on Exhibit XI. In addition, this unit value is approximately $393 million below the highest of the basic figures (reproduction cost new less depreciation), but only $177 million above the lowest figure (line 3, column 4). But once again, final judgment upon this point must be postponed for further exploration.

The unit value for the last year is $749,494,100 (originally estimated at $750,000,000 on Exhibit I), while this year's unit value is $820,000,000. This represents an increase of 9.4071 percent from 1951 to 1952.

The Computation of the Cost Evidence

Exhibits XII and XIII are comparable to Exhibits II and III in almost every respect. They describe, with no basic changes in technique, the computation of the two cost evidences of value, viz., reproduction cost new less depreciation and historical cost new less depreciation. One substantive change has been made on the 1952 exhibit, although this does not involve large amounts of value. In 1952 ''Land Held for Future Use'' is included in ''Miscellaneous Physical Property'' (line 14, column 1) rather than in the ''Plant and Equipment'' section. This would not have made any difference in 1951 because the totals transferred to Exhibit I included the Miscellaneous Physical Property. In 1952, however, the figures transferred to Exhibit XI do *not* include Miscellaneous Physical Property. It was pointed out above that the failure to exclude this nonoperative property in 1951 represented an inconsistency in the Valuation Division's techniques. It is clear that, in 1952, this inconsistency has been removed.

Columns 1 and 2 of Exhibit XII are particularly interesting. The Additions and Betterments shown for the years 1948, 1949 and 1950 (lines 3, 4 and 5 of

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XII

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION

(California Only)

1952

	Type of Property	*Historical Cost New* (1)	*Ratio* (2)	*Reproduction Cost New* (3)	*Condition (Percentage)* (4)	*Historical Cost New Less Depreciation* (5)	*Reproduction Cost New Less Depreciation* (6)
1	Plant and equipment						
2	Land	$9,179,985	---	$7,280,000	100	$9,179,985	$7,280,000
3	Additions and betterments, 1948, gross	176,969,822	1.14	201,745,597	93	164,581,934	187,623,405
4	Additions and betterments, 1949, gross	154,618,505	1.12	173,172,726	95	146,887,580	164,514,090
5	Additions and betterments, 1950, gross	116,876,063	1.09	127,394,909	97	113,369,781	123,573,062
6	Additions and betterments, 1951, gross	124,631,000	1.00	124,631,000	99	123,384,690	123,384,690
7	Other	477,654,599	1.91	912,320,284	67–64	320,028,581	583,884,982
8	Total plant and equipment	$1,059,929,974		$1,546,544,516		$877,432,551	$1,190,260,229
9	Construction work in progress—land	$362,190	---	$300,000	100	$362,190	$300,000
10	Construction work in progress—other	10,423,916	1.00	10,423,916	100	10,423,916	10,423,916
11	Materials and supplies	13,475,868	1.00	13,475,868	90	12,128,281	12,128,281
12	Total to here	$1,084,191,948	---	$1,570,744,300	---	$900,346,938	$1,213,112,426
13	Miscellaneous physical property						
14	Land	$980,428[a]	---	$950,000	100	$980,428	$950,000
15	Other	136,029	---	223,088	73	99,301	162,854
16	Total miscellaneous physical property	$1,116,457		$1,173,088		$1,079,729	$1,112,854
17	Total owned, state-assessed	$1,085,308,405		$1,571,917,388		**$901,426,667**	**$1,214,225,280**

NOTE: [a] Includes $146,510 land held for future use. See Summary Control—Table XIII.
SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

column 1) are the same as those which appeared under the same labels in Exhibit II for 1951. It is these most recent additions and betterments to which the ratio of 1.00 is applied, on the assumption that the price level of these goods has not changed since they were added to the system. The fact that the figure of 1.09 is applied to the 1950 additions and betterments (line 5, column 2) means that the Valuation Division's computations show that the price level of these goods has risen by nine percentage points over the year. Exhibit II shows that the ratio for 1949 was three percentage points above that for 1950 (the ratios were 1.00 and 1.03 respectively). This is shown on Exhibit XII by the fact that the ratio for 1949 is 112 (line 4, column 2) while the ratio for 1950 is 1.09 (line 5, column 2). A comparison of Exhibit II and Exhibit XII thus reveals the process of moving the ratio up each year until a further reproduction cost study is completed for this company.

The remaining computations on Exhibit XII are similar to those for 1951 as illustrated on Exhibit II. The figures transferred to the weighting sheet (Exhibit XI) are the last two figures on line 12 of Exhibit XII labeled "Total to Here." Thus, line 12, column 5 of Exhibit XII becomes line 1 of Exhibit XI; while line 12, column 6 of Exhibit XII becomes line 2 of Exhibit XI. The items which appear under the heading of "Miscellaneous Physical Property" (lines 13 to 17 inclusive, of Exhibit XII) are considered to be nonoperative property. As such they are not part of the unit value computation. They are separately valued and are added later in the assessment process.

Exhibit XIII shows the summary control statement (in somewhat simplified form) for the Pacific Telephone and Telegraph Company for the 1952 assessment. This exhibit is comparable in every respect with Exhibit III, the summary control for 1951. The present exhibit shows a further breakdown of the data which appear as historical cost new (column 1) on Exhibit XII. Once again, each of the figures which appears in column 1 of Exhibit XII can be found in the first three columns of Exhibit XIII. The following list shows the correspondence between these two tables.

To Exhibit XII, Column 1	*From Exhibit XIII*
Line 2	Line 2, column 1
Lines 3, 4, 5, 6 and 7	Line 28, column 2 (the sum of lines 3 to 27, inclusive, of column 2)
Line 9	Line 29, column 1
Line 10	Line 29, column 2
Line 11	Line 33, column 2
Line 14	Lines 30, 32 and 34, column 1
Line 15	Lines 30 and 32, column 2
Line 17	Line 35, column 3

As in the case of the 1951 data, no attempt is made at this point to illustrate the determination of the other two pieces of basic information which appear on Exhibit XII, the ratio and the condition percent.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XIII

DETAIL OF THE COMPUTATION OF COST EVIDENCE: SUMMARY CONTROL

(California Only)

1952

	Items of Property	*Assessed by State*			*Not Assessed by State*		Total Within Exterior Bounds of California
		Land (1)	*Other (2)*	*Total (3)*	*Licensed Motor Vehicles (4)*	*Other (5)*	*(6)*
1	Right of way	--------	--------	--------	--------	$5,071,688	$5,071,688
2	Land	$9,179,985	--------	$9,179,985	--------	11,118	9,191,103
3	Buildings	--------	$109,602,682	109,602,682	--------	3,384,034	112,986,716
4	Central office equipment	--------	323,421,035	323,421,035	$48,823	360,487	323,830,345
5	Telephone and telegraph stations						
6	Station apparatus	--------	$70,301,159	$70,301,159	--------	$357.440	$70,658,599
7	Station installations	--------	53,684,967	53,684,967	--------	193,839	53,878,806
8	Drop and block wires	--------	26,179,172	26,179,172	--------	7,792	26,186,964
9	Private branch exchange	--------	38,832,086	38,832,086	--------	944,294	39,776,380
10	Booths and special fittings	--------	5,857,605	5,857,605	--------	217,911	6,075,516
11	Total telephone and telegraph stations	--------	$194,854,989	$194,854,989	--------	$1,721,276	$196,576,265
12	Pole lines—exchange	--------	$54,890,053	$54,890,053	--------	$367,922	$55,257,975
13	Pole lines—toll	--------	15,661,013	15,661,013	--------	(14,220)	15,646,793
14	Aerial cable—exchange	--------	110,114,493	110,114,493	--------	99,631	110,214,124
15	Aerial cable—toll	--------	11,663,046	11,663,046	--------	22,171	11,685,217
16	Underground cable—exchange	--------	81,698,927	81,698,927	--------	67,827	81,766,754
17	Underground cable—toll	--------	20,622,158	20,622,158	--------	68,931	20,691,089
18	Buried cable—exchange	--------	5,393,335	5,393,335	--------	23,817	5,417,152
19	Buried cable—toll	--------	17,731,814	17,731,814	--------	45,354	17,777,168
20	Submarine cable—exchange	--------	1,454,322	1,454,322	--------	223,356	1,677,678
21	Submarine cable—toll	--------	1,340,820	1,340,820	--------	230,792	1,571,612
22	Aerial wire—exchange	--------	12,614,611	12,614,611	--------	2,434	12,617,045
23	Aerial wire—toll	--------	12,038,358	12,038,358	--------	7,273	12,045,631
24	Underground conduit—exchange	--------	51,182,778	51,182,778	--------	30,444	51,213,222
25	Underground conduit—toll	--------	9,894,608	9,894,608	--------	124,912	10,019,520
26	Furniture and office equipment	--------	13,142,489	13,142,489	--------	63	13,142,552
27	Vehicles and other work equipment	--------	3,428,459	3,428,459	16,522,057	18	19,950,534
28	Subtotal	$9,179,985	$1,050,749,990	$1,059,929,975	$16,570,880	$11,849,328	$1,088,350,183
29	Telephone plant under construction	$362,190	$10,423,915	$10,786,105	--------	$1,049,302	$11,835,407
30	Property held for future telephone use	731,384	92,411	823,795	--------	40,599	864,394
31	Telephone plant acquisition adjustment	--------	--------	--------	--------	114,095	114,095
32	Miscellaneous physical property	102,534	43.618	146,152	--------	551,568	697.720
33	Materials and supplies	--------	13,475,868	13,475,868	$9,165	12,609	13,497,642
34	Other deferred charges [a]	146,510	--------	146,510	--------	--------	146,510
35	Grand total	**$10,522,603**	**$1,074,785,802**	**$1,085,308,405**	**$16,580,045**	**$13,617,501**	**$1,115,505,951**

NOTE: [a] Represents parcels of real property acquired during the period January 1, 1952, and noon of Monday, March 3, 1952.

SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1952.

The Computation of the Earnings Evidence

Exhibit XIV incorporates the most important changes made by the Valuation Division in its 1952 valuation techniques. The first important change which is to be noted is the new computations which are required to arrive at a net income figure for purposes of capitalization.

Line 2 of Exhibit XIV shows the net operating income of the company as this, in turn, is shown on the income statement of the stockholders' report (Exhibit XV). This is immediately followed by one addition and one subtraction. The addition represents no change from the techniques of the previous year, for it consists merely of the depreciation expenses charged by the company for each of the relevant years. As before, it is added back to fulfill the Valuation Division's purpose of capitalizing before depreciation and accounting for the depreciation in the capitalization rate itself.

The subtraction, however, does represent a new approach. Line 4 shows an expense of $601,900 (for 1951—column 1) for employees' service pension. This appears in the income statement of the company as a *non*operating expense and is consequently neglected in the computation of net operating income as shown on line 2. The charge is made to an account called "Miscellaneous Deductions from Income" in order to enable the company to comply with the accounting requirements of the Federal Communications Commission. However, "the companies and their independent public accountants consider that these latter amounts were, in fact, current operating expenses." [1]

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[1] Annual Report of the Pacific Telephone and Telegraph Company, 1951, p. 31, footnote.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XIV

COMPUTATION OF EARNINGS EVIDENCE

(System and California)

1952

	Items	*1951* *(1)*	*1950* *(2)*	*1949* *(3)*	*1948* *(4)*	*1947* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$57,689,989	$58,426,819	$40,962,944	$34,678,004	$17,773,537	--------	
3	Depreciation	44,621,811	41,713,476	40,133,933	34,623,324	29,983,761	--------	
4	Less: (a)	601,900	656,618	656,618	656,618	656,618	--------	
5	Net before depreciation	$101,709,900	$99,483,677	$80,440,259	$68,644,710	$47,100,680	$79,475,845	
6	Federal income tax	39,195,000	28,160,000	12,167,000	9,455,000	4,151,000	--------	
7	State income taxes	2,134,269	1,067,169	710,976	333,549	740,477	--------	
8	Net before depreciation and income taxes	**$143,039,169**	**$128,710,846**	**$93,318,235**	**$78,433,259**	**$51,992,157**	**$99,098,733**	
9	Expectancy: 18 years							
10	Capitalization rates							
11	(1) 5.500% interest + 3.392% depreciation = 8.892%.							
12	(2) 8.892% annuity + 2.178% taxes = 11.070%.							

		1-Year Basis, 1951		*5-Year Average*	
		Before depreciation	*Before depreciation and income taxes*	*Before depreciation*	*Before depreciation and income taxes*
13	Value computation				
14	Period				
15	Capitalization rate	8.892%	11.070%	8.892%	11.070%
16	Net income	$101,709,900	$143,039,169	$79,475,845	$99,098,733
17	Capitalized income	$1,143,836,030	$1,292,133,414	$893,790,429	$895,200,840
18	Adjustments				
19	Working capital (—)	24,550,839	24,550,839	21,209,162	21,209,162
20	System earning value including motor vehicles	$1,119,285,191	$1,267,582,575	$872,581,267	$873,991,678
21	California earning value including motor vehicles (apply 76.1559%)	$852,401,711	$965,338,918	$664,522,117	$665,596,228
22	Plus land reversions	2,777,320	2,777,320	2,777,320	2,777,320
23		$855,179,031	$968,116,238	$667,299,437	$668,373,548
24	California earning value excluding motor vehicles (apply 97.29%)	**$832,003,679**	**$941,880,288**	**$649,215,622**	**$650,260,625**

NOTE: [a] Service pension account not allowed by Federal Communications Commission.
SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

The company has claimed for several years that this pension expense should be considered an operating expense and that it should be deducted prior to the application of the capitalization rates. It is interesting to note, however, that the Valuation Division did not, in the past, consider this a legitimate claim and chose rather to accept the interpretations of the Federal Communications Commission. The year 1952 is the first year in which the Valuation Division has accepted the argument of the company and allowed this item as a deduction to arrive at net income for tax valuation purposes. Although this deduction was not allowed for the years prior to 1952, it is clearly essential that it be carried back to the previous years in the computation of the five-year-average value as of 1952. The amounts in columns 2, 3, 4 and 5 of line 4 are the amounts which actually appeared in the accounts of the Pacific Telephone and Telegraph Company for employees' pensions in each of the years listed.

The two remaining additions to income are the two tax items which appear on lines 6 and 7 of Exhibit XIV. Line 6, column 1 shows the federal income tax paid by the company in 1951. The amount is taken directly from the income statement. The state income taxes are not specifically listed in the income statement but they *are* listed by the company in its Annual Financial Report to the Valuation Division. The amount is for *all* state income taxes paid and not merely those paid to the State of California. All of these taxes are listed as operating expenses and have been deducted by the company prior to the determination of the net operating income figure listed on line 2. These taxes are added back for the same basic reason that depreciation expense is added back, i.e., to enable the expenses to be accounted for in the capitalization rate. The theory behind this treatment of income taxes paid was discussed briefly in Chapter IX.

The expected future life of the operating physical assets of the company is shown to be 18 years (line 9), the same as that estimated for the 1951 valuation.

Lines 10 to 12 inclusive show the determination of the two capitalization rates which are applied in the computations below. The first of these includes a basic rate of interest of 5.500 percent plus a computed annuity factor of 3.392 percent to take account of the depreciation element by the so-called ''sinking-fund'' method. The theory behind this computation too was discussed in some detail in Chapter IX and the process was illustrated in the analysis of the 1951 valuation. The second of the capitalization rates includes both of the other two elements (the basic interest rate and the annuity factor) and contains an additional rate of 2.178 percent to account for the income taxes. The computation of this additional percentage is somewhat complicated and is not reproduced in detail at this point. Suffice it to say that it is based upon the assumption that the capital structure of the Pacific Telephone and Telegraph Company shows an equal distribution of financing as between capital stock and funded debt and that the average interest rate on the funded debt was 3¼ percent. (The actual capital structure as of December 31, 1951, was closer to a 40-60 distribution, with funded debt the smaller of the two. The weighted average interest rate on the funded debt was approximately 3.03 percent). As indicated in Chapter IX, the Valuation Division has prepared a series of tables for rapid calculation of this capitalization factor. Portions of these tables are shown in Appendix B.

It has been pointed out above that the application of an adjusted capitalization rate to a net income figure computed before income taxes represents one of the most important changes in the techniques of the Valuation Division for the year 1952. At the same time, the process is a new one and it contains the difficulties and the insufficiencies which are often involved in new processes. It is fair to say that many of the difficulties are recognized by the members of the Valuation Division and that, as a result, the division has been somewhat reluctant to place sole reliance upon this computation. This reluctance is certainly indicated in the computations which appear on lines 13 to 17 inclusive of Exhibit XIV. In this section of the exhibit, it may be seen that income is capitalized by *two* methods, in the first of which the capitalization rate of 8.892 percent is applied to net operating income before depreciation, and in the second of which the capitalization rate of 11.070 percent is applied to net operating income before depreciation *and before income taxes*. It is, of course, the second of these which is the *new* computation. The first is exactly the same as that applied in previous years. Each of these methods is computed on the one-year basis and on the five-year-average basis. The computations result in the four capitalized income figures listed on line 17, columns 1, 3, 5 and 7 of Exhibit XIV.

Lines 18 to 23 inclusive of Exhibit XIV show a series of adjustments to the capitalized income figures, the first being that for working capital (line 19). The subtraction of working capital gives four separate figures for the system earnings value, that is, the value of the entire operating system of the Pacific Telephone and Telegraph Company, including licensed motor vehicles and other nontaxable property (line 20). Line 21 shows this adjusted to the California portion of the company. The allocation is made on the assumption (calculated) that the California portion accounts for 76.1559 percent of the value of the entire company.

The land reversion adjustment is shown on line 22 of Exhibit XIV. This adjustment was, as pointed out above, neglected in 1951 for no apparent reason. It is included in the 1952 calculations for reasons which were adequately discussed in Chapter IX.

The final adjustment is designed to eliminate that nontaxable property which is located within the exterior boundaries of California. Line 23 shows this adjustment to be based on the assumption (calculated) that the taxable property of the company within California accounts for 97.29 percent of the value of the total property of the company within California.

The final results of these calculations appear on line 23, columns 1, 3, 5, and 7. It is these figures which are transferred to Exhibit XI as the earnings evidences for 1952. Thus, line 23, column 1 of Exhibit XIV becomes line 3, column 1 of Exhibit XI; line 23, column 3 of Exhibit XIV becomes line 3, column 3 of Exhibit XI; line 23, column 5 of Exhibit XIV becomes line 3, column 2 of Exhibit XI; and line 23, column 7 of Exhibit XIV *should* become line 3, column 4 of Exhibit XI. (The fact that the last figures mentioned do not correspond represents an unexplained computational error by the Valuation Division).

The data behind the computation of Exhibit XIV come, for the most part, from the income statement which appears in the annual report of the company to its stockholders and from similar statements for the previous years. The relevant portion of this statement is included as Exhibit XV. Line 17, column 3 of Exhibit XV shows the net operating income for the year 1951 as $57,689,989. This becomes line 2, column 1 of Exhibit XIV. Line 7, column 1 of Exhibit XV, showing depreciation expenses for the year, becomes line 3, column 1 of Exhibit XIV. As mentioned above, line 4, column 1 of Exhibit XIV is taken from a footnote which appears in the annual report of the Pacific Telephone and Telegraph Company for the year 1951 and which refers to the nonoperating section of the income statement. Line 14, column 1 of Exhibit XV, showing federal income taxes paid, becomes line 6, column 1 of Exhibit XIV. Line 7, column 1 of Exhibit XIV—State Income Taxes—is part of the figure for ''Other Operating Taxes'' which appears in line 15, column 1 of Exhibit XV, but the actual figure is obtained from the financial report of the Pacific Telephone and Telegraph Company to the Valuation Division. This latter report is not included here. The figure for the working capital adjustment (line 19, column 1 of Exhibit XIV) is approximately one-twelfth of the total operating expenses minus depreciation (Exhibit XV, line 12, column 3, minus line 7, column 1).

The basic 5.500 percent rate used in the capitalization process is based upon a rather lengthy analysis of the financial position of the company over the years 1947 to 1952. This analysis is used merely as a guide to the capitalization rate and no true formula technique is involved. The analysis made by the Valuation Division is shown in Appendix B.

The allocation percentages (lines 21 and 23, column 1 of Exhibit XIV) come from the computations in Exhibit XX shown below.

The Computation of the Stock and Debt Evidence

The final results of the stock and debt computations are shown on line 4 of Exhibit XI. As in the 1951 valuation, there are two figures which represent the stock and debt condition of the company, one based on the calendar year 1951, and the other based on the five-year period ending December 31, 1951. These figures are $873,442,742 (line 4, columns 1 and 3 of Exhibit XI) and $722,898,582 (line 4, columns 2 and 4 of Exhibit XI) respectively. The manner in which these figures are determined for the 1952 valuation is shown in four exhibits: Exhibit XVI, the exhibit of final calculation; and Exhibits XVII, XVIII and IX, the exhibits which show the detail of the figures in Exhibit XVI.

There were no important changes in the techniques of stock and debt computation as between 1951 and 1952. The form of the Valuation Division's work sheet upon which Exhibit XVI is based was markedly changed, but for this report Exhibit XVI is set up in much the same form as Exhibit VI, its counterpart for 1951. Some relatively minor changes in content were introduced in 1952. These are shown on Exhibit XVI and in the textual explanation. Only one change need be noted in the main portion of the exhibit, viz., lines 1 to 20, inclusive. This is the deduction of the item labeled ''Property Held for Future Use'' on line 13. This actually consists of the two balance sheet items labeled ''Property Held for Future Telephone Use'' at $1,749,537 and ''Miscellaneous Physical Property'' at $920,980. These two items total $2,670,517 but are ''rounded'' down to an estimated market value of $2,400,000 for purposes of the present adjustment. This amount appears on Exhibit XVI as line 13, column 2. As will be recalled, no such adjustment was made in the 1951 computations. It is claimed that this represents an additional refinement in 1952 and that the unit value figures now clearly represent only the operative property of the system.

The ''Deferred Credits'' item (line 7, column 2) is taken at an arbitrary 25 percent of the figure of $135,194 for ''Other Deferred Credits'' on the balance sheet. The ''Deferred Charges'' item (line 18, column 2) is taken at an arbitrary 40 percent of the figure of $2,973,223 for ''Other Deferred Charges'' on the balance sheet.

The system stock and debt value is shown in line 20, column 4 of Exhibit XVI. This figure of $1,178,984,267 is, with the exception of the treatment of the small amount of nonoperative property, comparable to the figure of $1,097,036,675 which appears in line 19, column 4 of Exhibit VI. Beyond this point, however, the

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XV

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE FOR THE SYSTEM
(Income Statement)

1952

		Amounts		
	Items	*(1)*	*(2)*	*(3)*
1	Local service revenues	$281,559,287		
2	Toll service revenues	175,115,134		
3	Miscellaneous revenues	22,735,788		
4	Less uncollectible operating revenues	1,513,279		
5	Total operating revenues		$477,896,930	
6	Current maintenance	$103,202,193		
7	Depreciation expense	44,621,811		
8	Traffic expenses	91,977,446		
9	Commercial expenses	42,858,540		
10	Operating rents	2,807,253		
11	General and miscellaneous expenses	53,162,735		
12	Total operating expenses		338,629,978	
13	Net operating revenues			$139,266,952
14	Federal taxes on income	$39,195,000		
15	Other operating taxes	42,381,963		
16	Total operating taxes			81,576,963
17	Net operating income			**$57,689,989**

SOURCE: Income Statements (System), Annual Report of Pacific Telephone and Telegraph Company, 1952.

treatments in 1951 and 1952 differ substantially, although the end results are not greatly different. In 1951 the technique was simply to determine the allocation percentage for the California portion of the system and apply this to the system stock and debt value. The computation of the allocation percentage included the book costs of all the physical property of the company, including materials and supplies. In 1952, however, the materials and supplies are not allocated to California by the formula method applied to other types of property but by the company's own allocation as reported in the summary control.

It should be noted that the total balance sheet figure for materials and supplies is deducted from the deductions on line 16, column 1 of Exhibit XVI—that is, the amount of materials and supplies is *not* deducted from the debts along with the other current assets. This, in turn, means that the materials and supplies

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XVI

COMPUTATION OF STOCK AND DEBT EVIDENCE

(System and California)

1952

		Amounts			
	Items	*(1)*	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on sales				
3	Capital stock		$714,145,422		
4	Bonds		$429,456,275	$1,143,601,697	
5	Value based on books				
6	Current and accrued liabilities		$121,512,211		
7	Deferred credits		33,798	121,546,009	
8	Total debts				$1,265,147,706
9	Assets subtracted from debts				
10	Value based on sales				
11	Securities		$613,420		
12	Value based on books				
13	Property held for future use		2,400,000		
14	Current assets				
15	Total	$86,602,168			
16	Deduct materials and supplies	17,831,824			
			68,770,344		
17	Prepaid accounts		13,190,386		
18	Deferred charges		1,189,289		
19	Total assets subtracted from debts				86,163,439
20	System stock and debt value including motor vehicles				**$1,178,984,267**
21	Less: Materials and supplies				16,048,642
22	System stock and debt value excluding materials and supplies				**$1,162,935,625**
23	California stock and debt value excluding materials and supplies (apply 76.1559%)				885,644,092
24	Plus: Materials and supplies, California only				12,128,281
25	California stock and debt value including motor vehicles				**$897,772,373**
26	California stock and debt value excluding motor vehicles (apply 97.29%)				**$873,442,742**
27	5-year average stock and debt value		*Less estimated nonoperating*		
28	1947	$757,537,421	$2,000,000	$755,537,421	
29	1948	869,492,362	2,000,000	867,492,362	
30	1949	983,452,238	2,000,000	981,452,238	
31	1950	1,097,036,675	2,000,000	1,095,036,675	
32				$3,699,518,696	
33	1951			1,178,984,267	
34				$4,878,502,963	
35	System 5-year average stock and debt value			$975,700,592	
36	California 5-year average stock and debt value including motor vehicles (apply 76.1559%)			$743,034,826	
37	California 5-year average stock and debt value excluding motor vehicles (apply 97.29%)				**$722,898,582**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

for the entire company are represented in the figure on line 20, column 4—the "System Stock and Debt Value." The next step, then, is to deduct the total amount of materials and supplies (for some reason that is not quite clear, the amount deducted is only 90 percent of the balance sheet figure rather than the full amount) to obtain a figure for "System Stock and Debt Value Excluding Materials and Supplies." This calculation is shown in lines 20 to 22 inclusive, column 4 of Exhibit XVI. The figure of $16,048,642 (line 21, column 4) is 90 percent of $17,831,824 (line 16, column 1) and *represents* all of the materials and supplies of the system.

It is at this point that the remainder of the property is allocated to California on the basis of the allocation percentage of 76.1559 percent, computed in such a way as to exclude the materials and supplies item (see Exhibit XX and the accompanying explanation). This computation is shown in line 23, column 4 of Exhibit XVI.

The last figure computed contains no amount for materials and supplies. The fact that the Valuation Division does consider materials and supplies to be part of the "unit" being valued means that the California portion of materials and supplies must be added back. The summary control statement shows the total taxable materials and supplies within California to be $13,475,868 (line 33, column 3 of Exhibit XIII). This too is taken at 90 percent and the result—$12,128,281—is added to the allocated value figure (line 24, column 4 of Exhibit XVI).

The value figure still contains an element of nontaxable property; namely, that property within the boundaries of the State of California which is, for one reason or another, exempt from property taxation within the State. This is removed by the usual device of applying a percentage (for its computation see Exhibit XX) which represents the ratio of taxable property to total property within the State. The resulting figure of $873,442,742 is the final stock and debt value which is transferred to Exhibit XI as the one-year evidence. In other words, line 26, column 4 of Exhibit XVI becomes line 4, columns 1 and 3 of Exhibit XI.

This treatment of the materials and supplies of the company is advanced as another refinement in the Valuation Division's techniques. Although a judgment of the need for and the desirability of this type of treatment is reserved for the time being, it seems worth mentioning at this point that it seemingly involves the Valuation Division in a mechanical error. The percentage figure of 97.29 (line 26, Exhibit XVI) is simply the ratio of the total taxable property within California to the *total* property within the exterior boundaries of the State. This ratio figure does include the materials and supplies item, since no specific deduction is made. The percentage may then be considered to allocate the materials and supplies, as well as all other items of property, as between the taxable and the nontaxable portions. But this allocation of materials and supplies has already been made, as represented by the fact that the Valuation Division has added back only the *taxable* materials and supplies (at 90 percent) on line 24 of Exhibit XVI. Clearly, either the *total* materials and supplies within the State should be added back at this point, or the materials and supplies items should be subtracted from all other property in the computation of the ratio in question. No doubt this error involves a very small final amount of value, but it does illustrate an error of logic and application into which it is possible to fall if a high degree of finesse is attempted in such calculations.

It was mentioned above that the 1952 figure does not contain any reference to nonoperative property. It was also mentioned above that this is the first year in which this exclusion has been incorporated into the calculations. This means that, in the calculation of the five-year average stock and debt value, it is necessary to adjust the final figures for the previous years to make them comparable with the 1952 figure (that which applies to the 1951 calendar year). This adjustment is shown, along with the rest of the five-year average calculation, in lines 28 to 34 inclusive, columns 1 to 3 inclusive, of Exhibit XVI. The figures in column 2 ($2,000,000) are rough estimates only. Line 35, column 3 shows the system five-year average stock and debt value, which figure is then adjusted to exclude the property outside the State and to exclude that property within the State which is nontaxable. The final figure of $722,898,582 (line 37, column 4 of Exhibit XVI) is then transferred to the weighting sheet (line 4, columns 2 and 4 of Exhibit XI).

In both form and method, Exhibits XVII, XVIII and IX are the same as their counterparts for 1951. Only one or two additional comments need to be made at this point.

Exhibit XVII shows the computation of the "value based on sales" used in the determination of the stock and debt evidence. Line 3, column 4 of Exhibit XVII is transferred to line 3, column 2 of Exhibit XVI, and line 10, column 4 of Exhibit XVII is transferred to line 4, column 3 of Exhibit XVI. There are, however, two computational errors on Exhibit XVII. These are errors of multiplication. On line 1 of Exhibit XVII, multiply 5,510,377 (column 1) by $108.6667 (column 3). The result should be $598,794,484 rather than $598,794,464 as reported. On line 2 of Exhibit XVII, multiply 820,000 (column 1) by $140.1042 (column 3). The result should be $114,885,444 rather than $115,350,958 as reported. The corrected total is thus $1,143,136,203 instead of $1,143,601,697 as reported. In other words, the Valuation Division's figure is $465,494 too high.

Exhibit XVIII shows the detail behind the figures in column 3 of Exhibit XVII. The figures in the various columns of line 26 of Exhibit XVIII are transferred to the appropriate lines of column 3 of Exhibit XVII. The computations are in error at this point, however, for the Valuation Division transposed the figures in transferring them from Exhibit XVIII to Exhibit XVII. For example, line 26 column 3 of Exhibit XVIII *should* have been transferred to line 4 (rather than line 7) column 3 of Exhibit XVII. This transposition creates a numerical difference only in the cases of lines 8 and 9 of Exhibit XVII.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XVII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Value Based on Sales)

1952

	Issues	*Number of Shares Outstanding (1)*	*Par Value of Issue (2)*	*Average of Monthly High and Low Prices (3)*	*Computed Value (4)*
1	Common stock	5,510,377	--------	$108.6667	$598,794,464
2	Preferred stock	820,000	--------	140.1042	115,350,958
3	Subtotal				$714,145,422
4	30-year edbentures—3¼-78	--------	$75,000,000	94.6719	71,003,925
5	35-year debentures—3⅛-83	--------	75,000,000	97.2083	72,906,225
6	40-year debentures—2¾-85	--------	75,000,000	101.0677	75,800,775
7	40-year debentures—2⅞-86	--------	75,000,000	103.2188	77,414,100
8	40-year debentures—3⅛-87	--------	100,000,000	101.1875	101,187,500
9	30-year debentures—3½-81	--------	30,000,000	103.8125	31,143,750
10	Total				**$1,143,601,697**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XVIII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Monthly High and Low Security Prices)

1952

			Common Stock (1)	*Preferred Stock (2)*	*Debentures*				
					3¼-78 (3)	*3⅛-83 (4)*	*2¾-85 (5)*	*2⅞-86 (6)*	*3⅛-87 (7)*
1	January	Low	$103.000	$146.000	$106.875	$104.625	$99.500	$102.375	$104.625
2		High	105.375	151.500	107.625	104.625	100.000	103.000	105.750
3	February	Low	104.125	145.000	107.000	104.500	99.250	102.750	105.125
4		High	112.500	150.750	107.250	105.000	100.375	103.375	105.375
5	March	Low	106.500	139.250	105.000	103.125	95.875	99.000	102.000
6		High	113.000	146.000	106.750	103.125	99.250	99.000	104.750
7	April	Low	107.500	138.625	101.000	99.500	93.000	96.000	99.625
8		High	109.500	141.000	103.000	101.875	94.375	98.375	101.375
9	May	Low	106.625	138.000	102.375	99.625	93.625	96.250	100.125
10		High	109.625	140.500	103.125	100.750	94.000	97.000	101.000
11	June	Low	106.125	139.000	100.000	98.750	90.250	93.000	96.875
12		High	109.000	142.000	102.625	100.750	94.000	96.625	100.500
13	July	Low	106.500	138.000	102.250	100.250	92.750	95.250	99.000
14		High	108.875	140.500	102.875	101.000	95.000	97.250	101.250
15	August	Low	108.000	137.500	102.875	100.750	94.625	97.000	99.875
16		High	111.250	140.000	103.625	101.250	95.750	97.500	101.000
17	September	Low	109.000	137.000	103.500	101.625	94.500	96.000	101.000
18		High	111.875	138.500	104.000	102.125	96.125	96.625	101.375
19	October	Low	109.000	137.500	100.125	99.250	91.625	95.500	99.250
20		High	114.500	139.500	103.750	101.625	94.500	97.000	101.250
21	November	Low	107.250	132.500	99.000	98.500	89.750	93.250	98.750
22		High	111.750	139.000	101.500	99.000	92.000	94.000	99.250
23	December	Low	107.250	130.125	100.000	98.125	90.250	93.000	97.250
24		High	109.875	134.750	101.125	98.750	91.750	93.875	99.250
25	Totals		$2,608.000	$3,362.500	$2,477.250	$2,428.500	$2,272.125	$2,333.000	$2,425.625
26	Average of monthly high and low prices		$108.6667	$140.1042	$103.2188	$101.1875	$94.6719	$97.2083	$101.0677

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

Exhibit XIX is the Balance Sheet for the calendar year 1951. Only one change of form is shown on this statement and this change is indicated in footnote (a) to Exhibit XIX. Many of the figures on the balance sheet are transferred directly to Exhibit XVI. On the liabilities side, line 22 becomes line 6, column 2 of Exhibit XVI; line 25 of Exhibit XIX is multiplied by .25 and transferred to line 7, column 2 of Exhibit XVI. All other liabilities are omitted. On the assets side of the Balance Sheet (Exhibit XIX), line 12 is

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XIX

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1952

		(1)	*(2)*	*(3)*
1	**ASSETS**			
2	Plant and other investments			
3	Telephone plant			
4	Telephone plant in service	$1,436,660,177		
5	Telephone plant under construction	17,993,978		
6	Property held for future telephone use	1,749,537		
7	Telephone plant acquisition adjustment	175,859		
8	Total telephone plant		$1,456,579,551	
9	Less: depreciation reserve [a]		352,264,879	
10			$1,104,314,672	
11	Miscellaneous physical property		$920,980	
12	Other investments (principally securities)		613,420	
13	Total plant and other investments			$1,105,849,072
14	Current assets			
15	Cash		$5,881,294	
16	Special cash deposits		902,103	
17	Working funds		258,000	
18	Accounts receivable		61,728,947	
19	Materials and supplies		17,831,824	
20	Total current assets			86,602,168
21	Prepayments and deferred charges			
22	Prepayments		$13,190,386	
23	Deferred charges		2,973,223	
24	Total prepayments and deferred charges			16,163,609
25	Total assets			**$1,208,614,849**

		(1)	*(2)*
1	**LIABILITIES**		
2	Capital stock		
3	Common stock outstanding	$551,037,700	
4	Preferred stock outstanding	82,000,000	
5	Total capital stock		**$633,037,700**
6	Funded debt		
7	30-Year 3¼ debentures due March 1, 1978	$75,000,000	
8	30-Year 3½ debentures due November 15, 1981	30,000,000	
9	35-Year 3⅛ debentures due September 15, 1983	75,000,000	
10	40-Year 2¾ debentures due December 1, 1985	75,000,000	
11	40-Year 2⅞ debentures due October 1, 1986	75,000,000	
12	40-Year 3⅛ debentures due October 1, 1987	100,000,000	
13	Total funded debt		**430,000,000**
14	Current and accrued liabilities		
15	Notes payable to banks	$14,000,000	
16	Advance billing for service and customers' deposits	8,256,697	
17	Accounts payable and other current liabilities	46,666,017	
18	Accrued liabilities not due		
19	Taxes	48,238,218	
20	Interest	3,121,279	
21	Dividend on preferred stock	1,230,000	
22	Total current and accrued liabilities		**121,512,211**
23	Deferred credits		
24	Unextinguished premium on funded debt—net	$4,270,485	
25	Other deferred credits	135,194	
26	Total deferred credits		**4,405,679**
	Unappropriated earned surplus		19,659,259
	Total liabilities		**$1,208,614,849**

NOTE: [a] To conform with revised requirements of the Federal Communications Commission this depreciation reserve is deducted from assets rather than being included with the liabilities, as in former years.

SOURCE: Balance Sheet, Annual Report of Pacific Telephone and Telegraph Company for year 1951.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY—EXHIBIT XX

COMPUTATION OF INTERSTATE ALLOCATION AND TAXABLE PROPERTY PERCENTAGES

1952

	Items	*The System* *(1)*	*California Portion* *(2)*	*Percentage in California* *(3)*	*Weight (Percentage)* *(4)*	*Weighted Percentage in California* *(5)*
1	Book cost of physical property (Dec. 31, 1951)	$1,475,332,355	$1,115,355,241	75.6003	20	15.2001
2	Total company stations (Dec. 31, 1951)	4,482,549	3,428,902	76.4945	10	7.6495
3	Total conductor miles (Dec. 31, 1951)	19,063,750 (Mi.)	15,134,925 (Mi.)	79.3911	20	15.8782
4	Total operating revenues (year 1951)	$477,896,930	$362,807,051	75.9174	10	7.5917
5	Net operating income (year 1951)	$57,689,989	$43,031,605	74.5911	40	29.8364
6	Total	--------	--------	---	**100**	**76.1559**
7	Total historical costs		$1,115,505,951			
8	Total owned, state-assessed		**$1,085,308,405**			
9	Taxable percentage		**97.293%**			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

transferred to line 11, column 2 of Exhibit XVI; line 20 is transferred to line 15, column 1 of Exhibit XVI; line 19 is transferred to line 16, column 1 of Exhibit XVI; line 22 is transferred to line 17, column 2 of Exhibit XVI; and line 23 is multiplied by .40 and transferred to line 18, column 2 of Exhibit XVI. All other assets are omitted.

Computation of the Allocating Percentages

All of the items involved in the computation of the cost, earnings and stock and debt evidences have now been illustrated (with two exceptions) at least in detail considered to be sufficient for present purposes. The two exceptions are the two allocating percentages applied to the earnings and the stock and debt figures. The derivation of these percentages is explained in Exhibit XX.

Exhibit XX is completely comparable with Exhibit X. Lines 1 through 6 show the computation of the interstate allocation factor. One more computational error appears at this point, for the figure in line 1, column 5 should be 15.12006 percent rather than 15.2001 percent. Thus the final allocation percentage in line 6, column 5 should be 76.0759 instead of 76.1559. The incorrect figure has, nevertheless, been carried through the rest of the calculations. The figure just determined is transferred to lines 23 and 36 of Exhibit XVI and to line 21 of Exhibit XIV. Lines 7 to 9 inclusive of Exhibit XX show the determination of the percentage of taxable property within California. Line 7, column 2 *comes from* line 35, column 6 of Exhibit XIII (the Summary Control) and line 8, column 2 of Exhibit XX *comes from* line 35, column 3 of Exhibit XIII. The computed percentage in line 9, column 2 of Exhibit XX *goes to* lines 26 and 37 of Exhibit XVI and to line 23 of Exhibit XIV.

The determination of the unit value figures for the Pacific Telephone and Telegraph Company for the years 1951 and 1952 has now been described. To repeat, these figures are $750,000,000 for 1951 (line 12, column 1 of Exhibit I) and $820,000,000 for 1952 (lines 13, column 1 of Exhibit XI). These are the two figures which are then apportioned to various taxing jurisdictions within the State. The explanation of this allocation process is reserved for Chapter XIII.

THE KERN MUTUAL TELEPHONE COMPANY—1951

Aside from the relative sizes of the two enterprises, there is one major difference between the Kern Mutual Telephone Company and the Pacific Telephone and Telegraph Company from the point of view of the valuation problem. This, of course, comes from the fact that the former, as a mutual company, has no outstanding stock issue in the normal sense of the term, and no debt issues for which market values may be readily determined. The Valuation Division is therefore restricted to a consideration of three basic evidences of value for the Kern Mutual Telephone Company instead of the four evidences available for the valuation of the Pacific Telephone and Telegraph Company.

The three evidences used for the Kern Mutual Telephone Company are historical cost new less depreciation, reproduction cost new less depreciation and capitalized earnings. The computation of these evidences is very much simpler than in the case of the Pacific Telephone and Telegraph Company, although the techniques are basically the same. For this reason, too, the exhibits presented in this chapter to illustrate the valuation process are relatively simple in form. They are also few in number, for the fact that there is no stock and debt evidence to consider and the fact that the Kern Mutual Telephone Company is an intrastate company, make it possible to describe the valuation process in five exhibits for each of the two years. The 10 exhibits are sufficiently similar to those for the Pacific Telephone and Telegraph Company that nothing like the detailed analysis which was required for the study of the "pilot" company need be introduced at this point. In the present case the explanatory notes are given immediately below (for 1951) and, with the exception of Exhibit I, the exhibits are presented as a group without textual interruption.

Exhibit I, the "weighting sheet," shows the final unit value of the Kern Mutual Telephone Company for 1951 to be $1,227,300 (line 11, column 1). The three basic evidences used in the determination of this unit value are shown on lines 1, 2 and 3 of Exhibit I. It can also be seen that the earnings evidence is calculated on a one-year basis and on a five-year average basis (line 3, columns 1 and 2 respectively), but that no calculation at a 5½ percent capitalization rate is recorded. Exhibit IV shows the calculation of an earnings value on the basis of a 5½ percent rate, but this was presumably considered to be unimportant and was omitted from the weighting sheet.

The figure for historical cost new less depreciation (line 1, columns 1 and 2 of Exhibit I) comes from line 9, column 5 of Exhibit II. The figure for reproduction cost new less depreciation (line 2, columns 1 and 2 of Exhibit I) comes from line 9, column 6 of Exhibit II. The figure for earnings capitalized at 5 percent on the one-year basis (line 3, column 1 of Exhibit I) comes from line 18, column 1 of Exhibit IV. The figure for earnings capitalized at 5 percent on the five-year average basis (line 3, column 2 of Exhibit I) comes from line 18, column 5 of Exhibit IV. All other figures on Exhibit I are calculated figures used in the weighting process.

Exhibit II shows the detail for the cost evidences which appear on Exhibit I. As with the Pacific Telephone and Telegraph Company, the figures in the historical cost new column (column 1) are taken from the summary control (Exhibit III). Line 2, column 1 of Exhibit II is taken from line 2, column 1 of Exhibit III. Line 3, column 1 of Exhibit II, "Right of Way," is taken from line 1, column 1 of Exhibit III. It is interesting to note that this item was placed in the "nontaxable" category for the Pacific Telephone and Telegraph Company, but that it is included as "taxable property" for the Kern Mutual Telephone Company. As such, it is part of the historical cost new less depreciation figure, although no reproduction cost is computed for the right of way. No satisfactory explanation was offered for this inconsistency between companies, except that for the Kern Mutual it is a very small amount of cost. Lines 4 and 5, column 1 of Exhibit III are obtained by adding the figures in lines 3 to 19 inclusive, column 2 of Exhibit III. This total is the same as that which appears in line 20, column 2 of Exhibit II. Notice that only one group of Additions and Betterments is listed for the Kern Company, indicating that a reproduction cost study was completed for this company in 1949 and that all property in existence prior to that time is included in the "Other" category of line 5, Exhibit II. Line 7, column 1 of Exhibit II is taken from line 21, column 2 of Exhibit III. Line 8, column 1 of Exhibit II is taken from line 22, column 2 of Exhibit II. The total amount of property owned by the company and assessed by the Valuation Division is shown in line 9, column 1 of

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT I

COMPUTATION OF "SYSTEM" VALUE

1951

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 5%*	
		1-Year Basis (1)	*5-Year Average Basis (2)*
1	(H) Historical cost new less depreciation	$1,323,903	$1,323,903
2	(R) Reproduction cost new less depreciation	1,599,394	1,599,394
3	(E) Capitalized earnings	1,411,464	883,403
4	Unweighted average	$1,444,920	$1,268,900
5	Weighted average: H = 25%; R = 25%; E = 50%	$1,436,500	$1,172,500
6	Weighted average: H = 20%; R = 10%; E = 70%	1,412,700	1,043,100
7	Weighted average: H = 10%; R = 10%; E = 80%	1,421,500	999,000
8	Weighted average: H = 30%; R = 30%; E = 40%	1,441,600	1,230,400
9	Vertical averages	$1,428,100	$1,111,100
10	System value for 1950	**$948,220**	
11	System value for 1951	**$1,227,300**	

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

Exhibit II and in line 23, column 3 of Exhibit III. These amounts differ by $1 because of rounding.

The ratio figures (column 2) and the condition percent figures (column 4) which appear on Exhibit II are determined in the same way as they were for the Pacific Telephone and Telegraph Company. And for the same reasons they cannot be further explored at this point. All other figures on Exhibit II are computed figures and come from no other exhibits.

The summary control (Exhibit III) and Exhibit II show that the "Work in Process" item is the only physical property of the company which can be said to be nonoperative. No particular note was taken of these nonoperative characteristics in the valuation process, however, since the figures transferred to the weighting sheet are those which apply to *all* taxable property.

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT II

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION

1951

	Type of Property	*Historical Cost New (1)*	*Ratio (2)*	*Reproduction Cost New (3)*	*Condition (Percentage) (4)*	*Historical Cost New Less Depreciation (5)*	*Reproduction Cost New Less Depreciation (6)*
1	Plant and equipment						
2	Land in service	$5,803	---	$14,540	100	$5,803	$14,540
3	Right of way	1,501	---	--------	100	1,501	--------
4	Additions and betterments, 1950, gross	342,977	1.00	342,977	99	339,547	339,547
5	Other	1,108,491	1.30	1,441,038	85–84	942,217	1,210,472
6	Total plant and equipment	$1,458,772		$1,798,555		$1,289,068	$1,564,559
7	Construction work in progress—other	$7,364	1.00	$7,364	100	$7,364	$7,364
8	Materials and supplies	30,523	1.00	30,523	90	27,471	27,471
9	Total owned, state-assessed	$1,496,659		$1,836,442		**$1,323,903**	**$1,599,394**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT III

DETAIL OF THE COMPUTATION OF COST EVIDENCE

(Summary Control)

1951

	Items of Property	*Assessed by State*			*Licensed Motor Vehicles*	*Total Within Exterior Bounds of California*
		Land (1)	*Other (2)*	*Total (3)*	*(4)*	*(5)*
1	Right of way	$1,501	--------	$1,501	----	$1,501
2	Land	5,803	--------	5,803	----	5,803
3	Buildings	----	$173,538	173,538	----	173,538
4	Central office equipment	----	399,325	399,325	----	399,325
5	Telephone stations	----	$183,328	$183,328	----	$183,538
6	Station equipment, booths, etc.	----	42,015	42,015	----	42,015
7	Station wiring	----	40,571	40,571	----	40,571
8	Drop and block wire					
9	Total telephone stations	----	$265,914	$265,914	----	$265,914
10	Polies and fixtures—exchange	----	$106,501	$106,501	----	$106,501
11	Poles and fixtures—toll	----	126,604	126,604	----	126,604
12	Aerial cable—exchange	----	155,380	155,380	----	155,380
13	Aerial cable—toll	----	7,918	7,918	----	7,918
14	Underground cable	----	8,793	8,793	----	8,793
15	Wire—exchange	----	98,427	98,427	----	98,427
16	Wire—toll	----	85,954	85,954	----	85,954
17	Conduit	----	3,727	3,727	----	3,727
18	Furniture and office equipment	----	18,984	18,984	----	18,984
19	Vehicles and other work equipment	----	402	402	$25,254	25,656
20	Subtotal	$7,304	$1,451,467	$1,458,771	$25,254	$1,484,025
21	Work in process	----	$7,364	$7,364	----	$7,364
22	Materials and supplies	----	30,523	30,523	----	30,523
23	Grand total	**$7,304**	**$1,489,354**	**$1,496,658**	**$25,254**	**$1,521,912**

SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1951.

Exhibit IV shows the calculation of the earnings evidence. As already mentioned, only the 5 percent capitalization figures were transferred to the weighting sheet, although it is quite possible that the 5½ percent capitalization figures shown on Exhibit IV entered into the valuation processes in some subjective fashion not available for documentation. The net operating income figures in line 2, column 1 of Exhibit IV come

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT IV

COMPUTATION OF EARNINGS EVIDENCE

1951

	Items	*1950* *(1)*	*1949* *(2)*	*1948* *(3)*	*1947* *(4)*	*1946* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$77,313	$64,895	$55,569	$41,377	$22,521	--------	
3	Depreciation	36,023	19,588	12,067	9,058	18,121	--------	
4	Net before depreciation	**$113,336**	**$84,483**	**$67,636**	**$50,435**	**$40,642**	**$71,306**	
5	Expectancy: 21 years							
6	Capitalization rates							
7	(1) 5.000% + 2.800% annuity = 7.800%.							
8	(2) 5.500% + 2.646% annuity = 8.146%.							
9	Value computation							
10	Period	*1-Year Basis, 1950*				*5-Year Average*		
11	Capitalization rate	7.800%		8.146%		7.800%		8.146%
12	Net income before depreciation	$113,336		$113,336		$71,306		$71,306
13	Capitalized income	$1,453,026		$1,391,309		$914,179		$875,350
14	Adjustments							
15	Working capital (—)	22,372		22,372		20,718		20,718
16	Other (+)	5,220		4,725		5,220		4,725
17	System earning value including motor vehicles	$1,435,874		$1,373,662		$898,681		$859,357
18	System earning value excluding motor vehicles (apply 98.3%)	$1,411,464		$1,350,310		$883,403		$844,748

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT V

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE

1951

	Items	*Amounts* *(1)*	 *(2)*	 *(3)*
1	Local service revenues	$182,665		
2	Toll service revenues	242,216		
3	Miscellaneous revenues	7,214		
4	Less uncollectible operating revenues	2,062		
5	Total operating revenues		$430,033	
6	Maintenance expenses	$113,265		
7	Depreciation	36,023		
8	Traffic expenses	36,032		
9	Commercial expenses	63,333		
10	General office salaries and expenses	37,195		
11	Other operating expenses	18,634		
12	Total operating expenses		304,482	
13	Net operating revenues			$125,550[a]
14	Operating taxes			48,237
15	Net operating income			**$77,313**

NOTE: [a] Due to rounding of figures, this is not exact total of figures.

SOURCE: State Board of Equalization, Valuation Division—Financial Statement of Kern Mutual Telephone Co., 1950.

from the financial report of the company to the Valuation Division (Exhibit V, line 15, column 3). Depreciation is added back in the usual fashion at the figure which appears for this item in the income statement. Thus line 7, column 1 of Exhibit V becomes line 3, column 1 of Exhibit IV. The capitalization rates shown on lines 7 and 8 of Exhibit IV are determined by assumption and by calculation. The working capital adjustment in line 15, columns 1 and 3 is obtained by subtracting the depreciation (line 7, column 1, Exhibit V) from the total operating expenses (line 12, column 2, Exhibit V), and dividing the remainder by 12. This, as always, is a negative adjustment. In all cases the items for the other years come from similar tables for those years.

Since the Kern Mutual Telephone Company is entirely intrastate in character, no interstate allocation factor is required. The allocation percentage shown in line 18 of Exhibit IV is designed to account for the nontaxable property within the State. It is computed from the data on the summary control (Exhibit III). Divide the figure in line 23, column 5, Exhibit III by the figure in line 23, column 3, Exhibit III. The result is 98.3 percent, the allocating percentage in question.

This represents, with the noted exceptions, the data used in the valuation of the Kern Mutual Telephone Company for 1951.

THE KERN MUTUAL TELEPHONE COMPANY—1952

As in the case of the Pacific Telephone and Telegraph Company, certain changes were introduced into the valuation procedure for the Kern Mutual Telephone Company in 1952. These might be summarized as follows:

1. The application of a markedly different system of weights to the various evidences of value;
2. An increase in the basic interest rate used in the capitalization of net operating income (in this case, from 5 per cent to 6.5 percent);
3. The calculation of net operating income before depreciation and before income taxes and the application of a compensating factor in the capitalization rate. All of these new features are shown in Exhibits VI to X inclusive.

Since there are no substantive differences between the Kern Mutual Telephone Company tables and the Pacific Telephone and Telegraph Company tables which are not explained in the description of the 1951 valuation, it seems appropriate merely to indicate the relationship between the several exhibits presented and to show the sources of the figures used. This is done below in a simple tabular form. It is, of course, designed for a reference rather than for an explanatory purpose. As has been the case in other portions of the present chapter, the column at the right shows the source of figures which are indicated by the description in the column at the left.

To	*From*
Exhibit VI	
Line 1	Exhibit VII, line 10, column 5
Line 2	Exhibit VII, line 10, column 6
Line 3, column 1	Exhibit IX, line 21, column 1
Line 3, column 2	Exhibit IX, line 21, column 5
Line 3, column 3	Exhibit IX, line 21, column 3
Line 3, column 4	Exhibit IX, line 21, column 7
Exhibit VII	
Line 2, column 1	Exhibit VIII, line 2, column 1
Line 3, column 1	Exhibit VIII, line 1, column 1
Lines 4, 5 and 6, column 1	Exhibit VIII, lines 3 to 23, incl., column 2 (line 24, column 2)
Line 8, column 1	Exhibit VIII, line 25, column 2
Line 9, column 1	Exhibit VIII, line 26, column 2
Line 10, column 1	Exhibit VIII, line 27, column 3
Columns 2 and 4	Computed—see Appendix B
Exhibit VIII	Accounts of the company — reported by the company to the Valuation Division
Exhibit IX	
Line 2, column 1	Exhibit X, line 15, column 3
Line 3, column 1	Exhibit X, line 7, column 1
Line 5, column 1	Financial report of the company to the Valuation Division
Line 6, column 1	Financial report of the company to the Valuation Division
Line 18, columns 1 and 3	Exhibit X—subtract line 7, column 1 from line 12, column 2 and divide the remainder by 12
Line 21 (the allocating percentage)	Exhibit VIII—divide line 27, column 3 by line 27, column 5
Exhibit X	Accounts of the company — reported by the company to the Valuation Division

All other figures in these exhibits are either computed figures or come from similar exhibits for previous years. It is particularly interesting to note that line 12, column 1 of Exhibit VI shows the unit value of the operating property of the Kern Mutual Telephone Company to be exactly the same as it was the previous year, viz., $1,250,000.

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT VI

COMPUTATION OF "SYSTEM" VALUE

1952

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 6% Before Depreciation*		*Earnings Capitalized at 6½% Before Depreciation and Income Tax*		
		1-Year Basis (1)	*5-Year Average Basis (2)*	*1-Year Basis (3)*	*5-Year Average Basis (4)*	*Horizontal Averages (unweighted) (5)*
1	(H) Historical cost new less depreciation	$1,367,808	$1,367,808	$1,367,808	$1,367,808	--------
2	(R) Reproduction cost new less depreciation	1,740,335	1,740,335	1,740,335	1,740,335	--------
3	(E) Capitalized earnings	1,155,177	926,217	939,694	820,835	--------
4	Unweighted average	$1,421,100	$1,344,800	$1,349,300	$1,309,700	$1,356,200
5	Weighted average: H = 40%; R = 5%; E = 55%	$1,269,400	$1,143,500	$1,150,900	$1,085,600	$1,162,350
6	Weighted average: H = 35%; R = 5%; E = 60%	1,258,800	1,121,400	1,129,500	1,058,200	1,141,975
7	Weighted average: H = 33%; R = 1%; E = 66%	1,231,200	1,080,100	1,089,000	1,010,600	1,102,725
8	Weighted average: H = 19%; R = 1%; E = 80%	1,201,400	1,018,300	1,029,100	934,000	1,045,700
9	Weighted average: H = 5%; R = 5%; E = 90%	1,195,100	989,000	1,001,100	894,200	1,019,850
10	Vertical averages	$1,262,800	$1,116,200	$1,124,800	$1,048,700	**$1,138,100**
11	System value for 1951	**$1,250,060**				
12	System value for 1952	**$1,250,000**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT VII

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION

1952

	Type of Property	*Historical Cost New (1)*	*Ratio (2)*	*Reproduction Cost New (3)*	*Condition (Percentage) (4)*	*Historical Cost New Less Depreciation (5)*	*Reproduction Cost New Less Depreciation (6)*
1	Plant and equipment						
2	Land	$5,803	2.50	$14,500	100	$5,803	$14,500
3	Right of way	1,621	---	--------	100	1,621	--------
4	Additions and betterments, 1950, gross	342,977	1.09	373,845	97	332,688	362,630
5	Additions and betterments, 1951, gross	131,082	1.00	131,082	99	129,771	129,771
6	Other	1,047,809	1.42	1,487,889	83–81	869,681	1,205,190
7	Total plant and equipment	$1,529,292		$2,007,316		$1,339,564	$1,712,091
8	Construction work in progress	$2,724	1.00	$2,724	100	$2,724	$2,724
9	Materials and supplies	28,354	1.00	28,354	90	25,520	25,520
10	Total owned, state-assessed	$1,560,370		$2,038,394		**$1,367,808**	**$1,740,335**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT VIII

DETAIL OF THE COMPUTATION OF COST EVIDENCE

(Summary Control)

1952

		Assessed by State				
	Items of Property	*Land* (1)	*Other* (2)	*Total* (3)	*Licensed Motor Vehicles* (4)	*Total Within Exterior Bounds of California* (5)
1	Right of way	$1,621	--------	$1,621	----	$1,621
2	Land	5,803	--------	5,803	----	5,803
3	Buildings	----	$175,696	175,696	----	175,696
4	Central office equipment	----	417,493	417,493	----	417,493
5	Telephone stations					
6	Station apparatus	----	$171,055	$171,055	----	$171,055
7	Station installations	----	46,778	46,778	----	46,778
8	Drop and block wire	----	45,307	45,307	----	45,307
9	Private branch exchange	----	34.172	34,172	----	34,172
10	Booths and special fittings	----	4,810	4,810	----	4,810
11	Total telephone stations	----	$302,122	$302,122	----	$302,122
12	Pole lines—exchange	----	106,398	106,398	----	106,398
13	Pole lines—toll	----	128,739	128,739	----	128,739
14	Aerial cable—exchange	----	164,630	164,630	----	164,630
15	Aerial cable—toll	----	8,702	8,702	----	8,702
16	Underground cable—exchange	----	9,346	9,346	----	9,346
17	Underground cable—toll	----	188	188	----	188
18	Aerial wire—exchange	----	95,429	95,429	----	95,429
19	Aerial wire—toll	----	85,862	85,862	----	85,862
20	Underground conduit—exchange	----	3,422	3,422	----	3,422
21	Underground conduit—toll	----	460	460	----	460
22	Furniture	----	22,979	22,979	----	22,979
23	Vehicles	----	402	402	$9,714	10,116
24	Subtotal	$7,424	$1,521,868	$1,529,292	$9,714	$1,539,006
25	Work in progress	----	$2,724	$2,724	----	$2,724
26	Materials and supplies	----	28,354	28,354	----	28,354
27	Grand total	**$7,424**	**$1,552,946**	**$1,560,370**	**$9,714**	**$1,570,084**

SOURCE: State Board of Equalization, Valuation Division—Summary Control. 1952.

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT IX

COMPUTATION OF EARNINGS EVIDENCE

1952

	Items	*1951* *(1)*	*1950* *(2)*	*1949* *(3)*	*1948* *(4)*	*1947* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$59,336	$70,684	$64,895	$55,569	$41,377	--------	
3	Depreciation	45,502	42,652	19,588	12,067	9,058	--------	
4	Net before depreciation							
5	Federal income tax	$104,838	$113,336	$84,483	$67,636	$50,435	$84,146	
6	State income tax	10,000	12,000	10,000	15,500	31,850	--------	
7	Net before depreciation and income taxes	1,564	1,331	1,767	2,357	995	--------	
8	Expectancy: 21 years	**$116,402**	**$126,667**	**$96,250**	**$85,493**	**$83,280**	**$101,618**	
9	Capitalization rates							
10	(1) 6.500% interest + 2.361% depreciation = 8.861%.							
11	(2) 8.861% annuity + 3.185% taxes = 12.046%.							

		1-Year Basis, 1951		*5-Year Average*	
		Before depreciation	*Before depreciation and income taxes*	*Before depreciation*	*Before depreciation and income taxes*
12	Value computation				
13	Period				
14	Capitalization rate	.08861%	.12046%	.08861%	.12046%
15	Net income	$104,838	$116,402	$84,146	$101,618
16	Capitalized income	$1,183,140	$966,312	$949,622	$843,583
17	Adjustments				
18	Working capital (—)	$25,467	$25,467	$22,338	$22,338
19	Land reversion (+)	4,711	4,711	4,711	4,711
20	System earning value including motor vehicles	$1,162,384	$945,556	$931,995	$825,956
21	System earning value excluding motor vehicles (apply 99.38%)	**$1,155,177**	**$939,694**	**$926,217**	**$820,835**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

KERN MUTUAL TELEPHONE COMPANY—EXHIBIT X

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE

1952

	Items		*Amounts*	
		(1)	*(2)*	*(3)*
1	Local service revenues	$187,787		
2	Toll service revenues	273,963		
3	Miscellaneous revenues	6,590		
4	Less uncollectible operating revenues	2,041		
5	Total operating revenues		$466,299	
6	Maintenance expenses	$116,786		
7	Depreciation	45,502		
8	Traffic expenses	42,772		
9	Commercial expenses	74,785		
10	General office salaries and expenses	37,139		
11	Other operating expenses	34,118		
12	Total operating expenses		351,102	
13	Net operating revenues			$115,197
14	Operating taxes			55,861
15	Net operating income			**$59,336**

SOURCE: State Board of Equalization, Valuation Division—Financial Statement of Kern Mutual Telephone Co., 1951.

CHAPTER XI

THE VALUATION OF GAS AND ELECTRIC COMPANIES BY THE STATE BOARD OF EQUALIZATION

THE PACIFIC GAS AND ELECTRIC COMPANY—1951

From the point of view of the problems of valuation, the most important differences between the Pacific Gas and Electric Company and the other companies in the sample used in this study are associated with the relative sizes of the enterprises. In each of the two years selected for the present analysis the unit value of the Pacific Gas and Electric Company as determined by the Valuation Division of the State Board of Equalization was well over 1 billion dollars. In terms of asset value, the Pacific Gas and Electric Company is not only the largest state-assessed taxpayer in the State but the largest public utility enterprise in the United States. In some respects, of course, the valuation of the Pacific Gas and Electric Company is somewhat simpler than that for other companies. There is, for example, no problem of an interstate allocation of the value of the property, as for the Pacific Telephone and Telegraph Company or the Atchison, Topeka and Santa Fe Railway Company, since the Pacific Gas and Electric Company's property is entirely intrastate in character. In addition, the problem of large holdings of nonoperating property does not assume anything like the importance for the Pacific Gas and Electric Company as for the Atchison, Topeka and Santa Fe Railway Company (for example). But the technical complexity of the property and the fact that the company has spent more than $800,000,000 to date in its postwar expansion program more than offset these simplifying elements in the analysis of any of the common evidences of value.

Although the methods of valuation are essentially the same for this as for all of the companies in our sample, the complexity mentioned above is naturally reflected in the work sheets of the Valuation Division. In the exhibits which follow, however, every effort has been made to summarize and simplify. The exhibits do not, consequently, correspond precisely with those presented above for the two telephone companies or for those presented later for the other companies which remain to be discussed. The major changes are those which appear on Exhibit III, for it is this exhibit that would normally show the individual items of property grouped by major types in the form of a summary control. In its present form it is a combination of the summary control statement (summarized) and the so-called "Reconciliation Statement" submitted by the company to show the relationship between its investment record and its report of "taxable property." It is significant, too, that much of the data used by the Valuation Division in the valuation of the Pacific Gas and Electric Company is *preliminary* in character. For this company, the valuation process is recognized as being so complex that it is felt to be necessary to work up the data on the unit value as soon as possible. This is usually done before the company has prepared its annual report to the stockholders. As a result, the data behind the income evidence and the stock and debt evidence take the form of preliminary reports submitted by the company to the Valuation Division. These often differ in notable respects from the final data which appear in the stockholder's report. In cases where such differences exist, they are noted in the explanation below. The other exhibits differ in minor respects only. One other exhibit that would ordinarily appear as background for the stock and debt evidence, the computation of the average monthly high and low prices of the company's securities, is simply too large to be really useful in this section. It is consequently omitted in the present analysis.

The eight exhibits needed to describe the valuation of the Pacific Gas and Electric Company for the year ending on the first Monday in March, 1951 are shown below as a group. They are followed by the usual shorthand explanation of the relationship between the several exhibits in the group. The tabular form of this explanation is occasionally interrupted in order that peculiar situations may be briefly analyzed at the appropriate point.

To	*From*
Exhibit I	
Line 1	Exhibit II, line 14, column 7
Line 2	Exhibit II, line 14, column 6
Line 3, column 1	Exhibit IV, line 20, column 1
Line 3, column 2	Exhibit IV, line 20, column 5
Line 3, column 3	Exhibit IV, line 20, column 3
Line 3, column 4	Exhibit IV, line 20, column 7
Line 4, columns 1 and 3	Exhibit VI, line 23, column 4
Line 4, columns 2 and 4	See explanation below

All other figures on Exhibit I are "computed" figures. The final unit value of the operative property, excluding money and leased property amounts to $1,121,000,000 (line 12, column 1). The unit value for the preceding year is shown in line 11, column 1 as $964,824,220. This means that the 1951 valuation is $156,175,780, or 16.187 percent higher than the 1950 valuation.

On this weighting sheet, too, it is clear that a considerable disparity exists between the various figures taken to be evidences of the value of the system. Among the unweighted figures, the highest is that for reproduction cost new less depreciation (line 2) while the lowest is that for earnings computed on the five-year-average basis and capitalized at 6½% (line 3, column 4). The difference between these two figures is $745,942,629, with the smaller being only 51.8171 percent of larger. If the assumption is made that any one of

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT I

COMPUTATION OF "SYSTEM" VALUE

1951

	Type of Value Evidence and System of Weighting	Earnings Capitalized at 5%		Earnings Capitalized at 5½%		Horizontal Averages (unweighted)
		1-Year Basis (1)	5-Year Average Basis (2)	1-Year Basis (3)	5-Year Average Basis (4)	(5)
1	(H) Historical cost new less depreciation	$1,143,443,787	$1,143,443,787	$1,143,443,787	$1,143,443,787	--------
2	(R) Reproduction cost new less depreciation	1,621,439,601	1,621,439,601	1,621,439,601	1,621,439,601	--------
3	(E) Capitalized earnings	1,076,774,420	893,637,184	1,031,435,474	856,396,972	--------
4	(S) Stock and debt	1,255,530,181	1,294,299,981	1,255,530,181	1,294,299,981	--------
5	Unweighted averages	$1,274,297,000	$1,238,205,900	$1,262,962,500	$1,228,895,000	$1,251,090,100
6	Weighted average: H = 20%; R = 10%; E = 50%; S = 20%	$1,180,246,200	$1,096,511,400	$1,157,576,700	$1,077,891,300	$1,128,056,400
7	Weighted average: H = 10%; R = 10%; E = 40%; S = 40%	1,209,250,700	1,151,633,300	1,191,115,100	1,136,767,200	1,172,191,575
8	Weighted average: H = 30%; R = 30%; E = 30%; S = 10%	1,277,050,300	1,226,986,200	1,264,448,600	1,215,814,100	1,246,074,800
9	Weighted average: H = 10%; R = 10%; E = 20%; S = 60%	1,244,922,000	1,231,795,800	1,235,854,200	1,224,347,800	1,234,229,950
10	Vertical averages	$1,237,153,200	$1,189,026,500	$1,222,391,400	$1,176,743,100	**$1,206,328,600**
11	System value for 1950	**$964,824,220**				
12	System value for 1951	**$1,121,000,000**				

SOURCE: State Board of Equalization, Valuation Division—Work Sheets for 1951.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT II

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION AND REPRODUCTION COST NEW, LESS DEPRECIATION (California Only)

1951

	Type of Property	Historical Cost New (1)	Ratio (2)	Reproduction Cost New (3)	Condition (Percentage) (4)	Historical Cost New Less Depreciation (5)	Reproduction Cost New Less Depreciation (6)
1	Plant and Equipment						
2	Land	$42,722,543	---	$19,625,000	100	$42,722,543	$19,625,000
3	Additions and betterments, 1950, gross	210,998,254	1.00	210,998,254	99	208,888,271	208,888,271
4	Other	1,000,067,755	1.77	1,777,120,401	76–71	760,051,494	1,261,755,485
5	Total, plant and equipment	$1,253,788,552		$2,007,743,655		$1,011,662,308	$1,490,268,756
6	Construction work in progress—land	$2,000,000	1.00	$2,000,000	100	$2,000,000	$2,000,000
7	Construction work in progress—other	111,411,572	1.00	111,411,572	100	111,411,572	111,411,572
8	Materials and supplies	16,436,729	.90	14,793,056	90	14,793,056	13,313,750
9	Total to here	$1,383,636,853		$2,135,948,283		$1,139,866,936	$1,616,994,078
10	Miscellaneous Physical Property						
11	Land	$3,244,371	---	$4,000,000	100	$3,244,371	$4,000,000
12	Other	377,818	1.34	506,276	88	332,480	445,523
13	Total, miscellaneous physical property	$3,622,189		$4,506,276		$3,576,851	$4,445,523
14	Total owned, state-assessed	$1,387,259,042		$2,140,454,559		**$1,143,443,787**	**$1,621,439,601**

SOURCE: State Board of Equalization, Valuation Division—Work Sheets for 1951.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT III

DETAIL OF HISTORICAL COST NEW AND BALANCE SHEET RECONCILIATION

1951

	Items	*Land* *(1)*	*Other* *(2)*	*Total* *(3)*
1	Electric department	$32,266,580	$936,506,071	$968,772,651
2	Gas department	5,647,613	251,294,925	256,942,538
3	Water department	404,537	9,553,091	9,957,628
4	Steam sales department	82,419	2,055,355	2,137,774
5	Common utility plant	3,371,789	26,154,281	29,526,070
6	Subtotal	$41,772,938	$1,225,563,723	$1,267,336,661
7	Other			
8	Other physical property	$1,441,132	--------	$1,441,132
9	Nonoperative property	2,469,752	$165,004	2,634,756
10	Property held for future use	283,092	212,814	495,906
11	Total to here	$45,966,914	$1,225,941,541	$1,271,908,455
12	Materials and supplies	--------	$16,436,729	$16,436,729
13	Construction work in progress	--------	113,411,572	113,411,572
14	Estimated retirements (—)	--------	(8,644,756)	(8,644,756)
15	Total to here	$45,966,914	$1,347,145,086	$1,393,112,000
16	Gas storage mains and holders	--------	$175,760	$175,760
17	Automobiles, not licensed	--------	12,817	12,817
18	Intangible capital	--------	804,099	804,099
19	Adjustment [a]	--------	319,864	319,864
20	Total to here	$45,966,914	$1,348,457,626	$1,394,424,540
21	Less Public Utilities Commission reconciliation	--------	($7,163,087)	($7,163,087)
22	Less correction [b]	--------	(2,411)	(2,411)
23	Total owned, state-assessed	$45,966,914	$1,341,292,128	$1,387,259,042
24	Nontaxable items			
25	Public Utilities Commission Account 102½	--------	--------	$15,530,949
26	Licensed motor vehicles	--------	--------	8,075,749
27	Property on United States military reservations	--------	--------	1,003,481
28	Construction work in progress—maintenance, etc. [c]	--------	--------	4,474,771
29	Other physical properties	--------	--------	609,624
30	Total to Here	--------	--------	$1,416,953,616
31	Taxable items not accounted for on balance sheet			
32	Estimated retirements	--------	--------	$8,644,756
33	Less: Materials and supplies	--------	--------	(16,436,729)
34	Less: Automobiles not licensed	--------	--------	(12,817)
35	Less: Gas storage mains and holders	--------	--------	(175,760)
36	Balancing total	--------	--------	138,183
37	Plus correction [b]	--------	--------	2,411
38	Less other physical property	--------	--------	(5,239,189)
39	Utility plant per balance sheet	--------	--------	$1,403,874,471

NOTES: [a] Difference between summary of capital and tangible property lists.

[b] To correct figures of the Valuation Division for property on military reservations.

[c] Includes maintenance, progress payments, licensed motor vehicles, etc.

SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1951.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT IV

COMPUTATION OF EARNINGS EVIDENCE

(System and California)

1951

	Items	1950 (1)	1949 (2)	1948 (3)	1947 (4)	1946 (5)	5-Year Average (6)	(7)
1	Operating income							
2	Net income	$50,760,951	$39,665,716	$37,839,720	$34,998,350	$34 961,678	--------	
3	Depreciation	27,973,053	24,981,996	22,923,322	22,294,709	26,518,734	--------	
4	Net before depreciation	$78,734,004	$64,647,712	$60,763,042	$57,293,059	$61,480,412	--------	
5	Nonoperative income—other	24,866	254,096	111,939	81,132	62,005	--------	
6	Total net before depreciation	**$78,758,870**	**$64,901,808**	**$60,874,981**	**$57,374,191**	**$61,542,417**	**$64,690,453**	
7	Expectancy: 22 years							
8	Capitalization rates							
9	(1) 5.000% + 2.597% annuity = 7.597%							
10	(2) 5.500% + 2.447% annuity = 7.947%							
11	Value computation							
12	Period	*1-Year Basis, 1950*				*5-Year Average*		
13	Capitalization rate	7.597%		7.947%		7.597%		7.947%
14	Net income before depreciation	$78,758,870		$78,758,870		$64,690,453		$64,690,453
15	Capitalized income	$1,036,710,148		$991,051,592		$851,526,300		$814,023,569
16	Adjustments							
17	Working capital (—)	$9,045,173		$9,045,173		$8,289,559		$8,289,559
18	Construction work in progress (+)	56,700,000		56,700,000		56,700,000		56,700,000
19	System earning value including motor vehicles	$1,084,364,975		$1,038,706,419		$899,936,741		$862,434,010
20	California earning value excluding motor vehicles (apply 99.3%)	$1,076,774,420		$1,031,435,474		$893,637,184		$856,396,972

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT V

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE FOR THE SYSTEM

(Income Statement)

1951

	Items	Amounts (1)	 (2)	 (3)
1	Electric department revenues	$166,805,160		
2	Gas department revenues	69,257,172		
3	Other operating revenue	1,374,959		
4	Total operating revenues		$237,437,291	
5	Maintenance and repairs	$12,002,094		
6	Power purchased	11,385,443		
7	Natural gas purchased	33,784,667		
8	Oil and other fuel purchased	7,467,056		
9	Other production expenses	7,304,373		
10	Transmission expenses	2,763,971		
11	Distribution expenses	13,078,721		
12	Customers' accounting and collection	9,921,724		
13	Sales promotion expense	2,100,622		
14	Provision for depreciation and amortization	28,123,053		
15	Administrative and general expenses	5,836,872		
16	Provision for doubtful accounts	340,000		
17	Provision for insurance and casualties	960,000		
18	Pension plan expenses	1,757,659		
19	Total operating expenses		136,826,255	
20	Net operating revenues			$100,611,036
21	Provision for federal income tax	$19,006,013		
22	Other taxes	30,844,072		
23	Total operating taxes			49,850,085
24	Net operating income			**$50,760,951**

SOURCE: Pacific Gas and Electric Company—45th Annual Report, 1950.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT VI

COMPUTATION OF STOCK AND DEBT EVIDENCE

1951

		Amounts			
	Items	*(1)*	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on sales				
3	Capital stock		$640,601,205		
4	Bonds		648,491,149		
				$1,289,092,354	
5	Value based on books				
6	Installments received on capital stock		$1,493,777		
7	Current and accrued liabilities		53,081,031		
8	Deferred credits		2,114,794		
9	Injuries and damages reserve		650,896		
				57,340,498	
10	Total debts				$1,346,432,852
11	Assets subtracted from debts				
12	Value based on sales				
13	Securities		$5,272,836		
14	Value based on books				
15	Sinking funds		20,533		
16	Miscellaneous special funds		7,929		
17	Current assets				
18	Total	$89,626,750			
19	Less: Materials and supplies	15,604,298			
			74,022,452		
20	Deferred debits		176,528		
21	Total assets subtracted from debts				79,500,278
22	California stock and debt value including motor vehicles				**$1,266,932,574**
23	California stock and debt value excluding motor vehicles (apply 99.1%)				**$1,255,530,181**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT VII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Value Based on Sales)

1951

	Issue	*Number of Shares Outstanding (1)*	*Par Value of Issue (2)*	*Average of Monthly High and Low Prices (3)*	*Computed Value (4)*
1	Common stock	9,936,936	--------	$32.7708	$325,641,342
2	Preferred stock—6% cum.	4,211,662	--------	35.9063	151,225,199
3	Preferred stock—5½% cum.	1,173,163	--------	32.6354	38,286,644
4	Preferred stock—5% cum.	400,000	--------	29.8958	11,958,320
5	Preferred stock—5% red. cum.	1,000,000	--------	28.6146	28,614,600
6	Preferred stock—5% red. cum. "A"	1,500,000	--------	28.5521	42,828,150
7	Preferred stock—4.80% red. cum. "A"	1,500,000	--------	28.0313	42,046,950
8	Subtotal				$640,601,205
9	Series I bonds—3½—66	--------	$927,000	$106.1500	$984,011
10	Series J bonds—3—70	--------	18,669,000	104.5990	19,527,587
11	Series K bonds—3—71	--------	23,839,000	105.0990	25,054,551
12	Series L bonds—3—74	--------	109,548,000	105.0573	115,088,171
13	Series M bonds—3—79	--------	78,325,000	105.1719	82,375,891
14	Series N bonds—3—77	--------	48,182,000	104.9531	50,568,503
15	Series O bonds—3—75	--------	11,650,000	104.5000	12,174,250
16	Series P bonds—2¾—81	--------	24,113,000	101.1042	24,379,256
17	Series Q bonds—2⅞—80	--------	68,159,000	103.1146	70,281,880
18	Series R bonds—3⅛—82	--------	73,000,000	105.4792	76,999,816
19	Series S bonds—3—83	--------	78,645,000	104.4271	82,126,693
20	Series T bonds—2⅞—76	--------	78,800,000	102.5025	80,771,970
21	San Joaquin Light and Power bonds—6—52	--------	7,667,000	106.4115	8,158,570
22	Total				**$1,289,092,354**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT VIII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1951

		(1)	*(2)*
1	**ASSETS**		
2	Utility plant		$1,403,874,471
3	Investment and fund accounts		
4	Other physical property	$5,516,506	
5	Securities of Vallejo Electric Light and Power Co.	1,626,635	
6	Securities of Standard Pacific Gas Line, Inc.	4,179,000	
7	Other investments	772,836	
8	Sinking funds	20,533	
9	Miscellaneous special funds	7,929	
10	Total investment and fund accounts		12,123,440
11	Current and accrued assets		
12	Cash	$22,387,947	
13	Miscellaneous special deposits	313,737	
14	Working funds	103,945	
15	Temporary cash investments	29,897,090	
16	Accounts receivable	18,920,541	
17	Materials and supplies	17,338,108	
18	Prepayments	665,383	
19	Total current and accrued assets		$89,626,750
20	Deferred debits		
21	Unamortized debt discount and expense	$10,098,254	
22	Preliminary survey and investigation charges	104,460	
23	Other	882,640	
24	Total deferred debits		11,085,354
25	Capital stock discount expense		9,748,269
26	Reacquired long-term debt		1,830,000
27	Total assets		**$1,528,288,284**[a]

		(1)	*(2)*
1	**LIABILITIES**		
2	Capital stock		
3	Common	$248,423,400	
4	First preferred	244,620,625	
5	Total stock		$493,044,025
6	Installments received on capital stock		1,493,777
7	Minority interest in common stock and surplus of subsidiaries		18,206
8	Premium on capital stocks		20,113,761
9	Bonds		
10	In treasury	$1,830,000	
11	In hands of public	621,524,000	
12	Total bonds		623,354,000
13	Current and accrued liabilities		
14	Accounts payable	$9,618,541	
15	Drafts outstanding	1,782,277	
16	Dividends declared	4,968,530	
17	Matured long-term debt	45,800	
18	Matured interest	181,921	
19	Customers' deposits	447,705	
20	Taxes accrued	33,095,925	
21	Interest accrued on long-term debt	1,675,526	
22	Other	1,264,806	
23	Total current and accrued liabilities		53,081,031
24	Deferred credits		
25	Customers' advances for construction	$2,025,093	
26	Other	989,441	
27	Total deferred credits		3,014,534
28	Reserves		
29	For depreciation and amortization	$276,819,925	
30	For uncollectible accounts	1,454,881	
31	For insurance and injuries and damages	1,154,755	
32	For investment in Standard Pacific Gas Line, Inc.	3,482,399	
33	Total reserves		282,911,960
34	Contributions in aid of construction		3,256,124
35	Surplus		
36	Capital	$627,217	
37	Earned	47,373,650	
38	Total surplus		48,000,867
39	Total liabilities		**$1,528,288,284**[a]

NOTE: [a] Due to rounding of figures, totals may not be exact.

SOURCE: Balance Sheet, Pacific Gas and Electric Company, 45th Annual Report, 1950.

the evidences of value *could* be the unit value of the company, this absolute difference represents what might be called a ''range of uncertainty.'' When it is recalled that the *entire unit value* of the Pacific Telephone and Telegraph Company—the second largest company assessed by the Valuation Division—was only $750,000,000 in 1950, the startling fact appears that *the ''range of uncertainty'' for the largest public utility in the State is greater than the entire unit value of the second largest public utility in the State.* This is dramatic proof that the valuation process has not been completed with the computation of the evidences of value and that great care must be taken in the interpretation of these evidences and in the resolution of the conflicts which they present.

Among the weighted figures, the highest appears in line 8, column 1 and the lowest appears in line 6, column 4. The absolute difference in this case is $199,159,000. The lower is 84.4048 percent of the higher. The average of the eight ''basic'' evidences (average not shown on Exhibit I) is $1,146,619,700.

To Exhibit II	*From*
Line 2 plus line 11, column 1	Exhibit III, line 23, column 1
Line 3 plus line 4, column 1	Exhibit III, column 2: line 6 plus line 16 plus line 17 plus line 18, plus line 19 minus line 21 minus line 22 minus line 14
Line 6 plus line 7, column 1	Exhibit III, line 13, column 2
Line 8, column 1	Exhibit III, line 12, column 2
Line 12, column 1	Exhibit III, line 9 plus line 10, column 2
Line 14, column 1	Exhibit III, line 23, column 3
Column 2	Computed from cost index evidence and by physical appraisals—See Appendix B
Column 4	Computed from "life expectancy" tables and by physical appraisals—See Appendix B

All other figures on Exhibit II are ''computed'' figures. It is interesting to note that the figures finally transferred to Exhibit I are those which appear on line 14, columns 5 and 6 of Exhibit II. These represent the total property (except money and leased property) owned by the company and assessed by the State Board of Equalization and, as such, include the nonoperative property. Once again, the process shows some inconsistency, in view of the fact that it is the expressed purpose of the Valuation Division to determine the unit value of the operative property only. The amount of nonoperative property involved is, of course, relatively small.

Exhibit III represents a synthetic edition of several pieces of evidence submitted by the Pacific Gas and Electric Company to the Valuation Division. All of the figures are historical cost new figures and are used to fill in the necessary information in column 1 of Exhibit II preparatory to the application of the ratio for cost changes and the condition percent. All of the figures down to and including line 23 in Exhibit III are represented in column 1 of Exhibit II, as indicated by the fact that the figures for ''Total Owned, State Assessed'' are equal in the two tables. Lines 24 to 30, inclusive, of Exhibit III show those items, normally listed on the summary control, which the company considers to be nontaxable for property tax purposes in the State of California. The remainder of Exhibit III (except for line 38) represents items which appear in the ''taxable property'' section of Exhibit III but which are introduced at this point in order to reconcile this statement with the balance sheet record.

Several of the items in Exhibit III seem to require further explanation, since they have not appeared before in the description of the valuation of the other companies. The figure of $1,393,112,000 in line 15, column 3, is the amount shown in the summary control for all taxable property except ''intangible capital.'' The reconciliation statement shows, however, that the summary control does *not* contain all of the items of taxable property and that it *does* contain one other item which it should not contain. Lines 16 to 23, inclusive, show the positive and negative adjustments necessary to make the summary control figure correspond with that finally used by the Valuation Division in Exhibit II. The intangible capital item (line 18) is listed separately on the summary control and is, indeed, allocated to the several departments listed on lines 1 to 5, inclusive. This item represents the costs of organization, patent rights, licenses, privileges, etc., as required by the ''Uniform System of Accounts'' of the California Public Utilities Commission.[1] The adjustment shown on line 19, indicating the difference between the summary control and the tangible property lists of the company was not explored further, in view of the truly formidable aspect presented by these tangible property lists. The item on line 21 is merely an accounting entry to show the effects of a reclassification order by the California Public Utilities Commission in 1938 and still carried in this form in the accounts of the company. The correction of $2,411 (line 22) is really a correction to the figures of the Valuation Division. In effect, the historical cost new figure for ''Total Owned, State Assessed'' is too low by this amount. This results from the fact that the division made use of preliminary data in the preparation of its cost sheet and, at that time, the account showing the company's property on military reservations was given as $1,005,892 instead of $1,003,481 as shown in Exhibit III. Since this is a nontaxable item, this meant that the *taxable* property was just $2,411 lower than it should have been.

Among the nontaxable items beginning on line 24 in Exhibit III, the only unexplained item is that labeled ''Public Utilities Commission 102½.'' This refers to an account number in the company's books. This account represents the cost of acquisition of properties in excess of the historical cost allowed by the Public Utilities Commission for this item. It would ordinarily be included in one of the accounts that make up the ''Adjustments'' category on line 19, and, as such, would be taxable. But the fact that the present amount is not allowed by the commission in its accounting requirements (for rate-making purposes particularly) justifies its nontaxable status from the point of view of the Valuation Division.

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[1] Railroad Commission of the State of California (now the California Public Utilities Commission), *Uniform System of Accounts for Electrical Corporations*, Sacramento, 1937, pp. 59-60.

The balance sheet of the Pacific Gas and Electric Company for the year 1951 is shown as Exhibit VIII below. The first asset listed on this balance sheet is labeled ''Utility Plant'' and is reported at a figure of $1,403,874,471. The remaining portion of Exhibit III is included to show the reconciliation of the figures reported down to line 30 and the figure for ''Utility Plant'' on the balance sheet. There are a number of items that *do* appear in the total on line 30 of Exhibit III but which *do not* appear in the total on line 2 of Exhibit VIII (since they appear in some other items lower down on the assets side of the balance sheet). These account for the positive and negative adjustments on Exhibit III shown in lines 31 to 38 inclusive. The ''Balancing Total'' figure shown on line 36 represents an unexplained (and unexplored) accounting adjustment. The figure that appears on line 38 for ''Other Physical Property'' requires further explanation. The balance sheet which is Exhibit VIII in the present chapter shows this item at $5,516,506, while the amount shown in Exhibit III is $5,239,189. The difference is accounted for by the fact that Exhibit VIII represents the preliminary balance sheet while the adjustment for other physical property in Exhibit III is a final figure. The adjustment is made necessary on Exhibit III by the fact that the other physical property is listed below the utility plant on the balance sheet, so that, after the adjustment has been made, the total utility plant shown on Exhibit III corresponds with the total utility plant shown on the balance sheet —Exhibit VIII.

To Exhibit IV	*From*
Line 2, column 1	Exhibit V, line 24, column 3
Line 3, column 1	Exhibit V, line 14, column 1 minus $150,000
Line 5, column 1	45th Annual Report, Income Statement, p. 28—not shown in Table V
Line 7	Computed from "life expectancy" tables and by physical appraisals
Lines 9 and 10	Two "basic" rates are assumed—the annuity factor is computed from the "basic" rates
Line 17, column 1	Approximately one-twelfth of (line 19, column 2 minus line 14, column 1) of Exhibit V
Line 18, column 1	Exhibit II, column 1: (line 6 plus line 7) divided by 2 and rounded to nearest $100,000
Line 20 (the allocation percentage)	Exhibit III, column 3: (line 23 plus line 26 plus $541,295 of line 28) divided by line 23

Exhibit IV for the Pacific Gas and Electric Company is similar to the comparable exhibits for the other company discussed in this chapter. Only one or two points seem to be worth additional mention at this time. Line 3, column 1 is understated by $150,000 which represents the depreciation of Standard Pacific Gas Line, Inc. Line 5 shows the addition of nonoperating income to the net operating income before depreciation. This amount is shown in the income statement of the stockholders' report as one of three items of ''Miscellaneous Income.'' The other two items are dividend income and interest income from securities held by the Pacific Gas and Electric Company. It is supposed that the amount shown in the computations of the Valuation Division represents income from *physical* property, while the dividend and interest income clearly represent income from intangible property. While it is the ordinary practice of the Division to exclude nonoperating income, the fact that the cost sheet (Exhibit II) is computed to include nonoperating property means that, to be comparable with the cost evidence, the earnings evidence must include nonoperating income from physical property.

In the ''Adjustments'' section of Exhibit IV only two items are included. In response to the theory discussed in Chapter IX, a negative adjustment is made for working capital on the assumption that the amount shown is ''necessary'' for the operation of the enterprise and that it is already represented in the realized income figures. Since this is a nontaxable item, it is subtracted from the capitalized income figures. The positive adjustment for construction work in progress implies that it is the Valuation Division's opinion that the company had $56,700,000 more construction work in progress than was necessary for the successful operations of the enterprise. Since only the ''necessary'' amount is shown in the realized income figures, and since construction work in progress *is* a taxable item, the amount considered to be in excess of the ''necessary'' is added to the capitalized income figures. The absence of any adjustment for land reversions is notable, in view of the theory proclaimed by the Valuation Division that it is *always* necessary to make a positive adjustment for the amount of land owned by the company, which land is supposed to be undepreciable, when the capitalization rate is applied over the estimated future life of all property *except* land.

The Pacific Gas and Electric Company is, of course, a company that operates entirely within the boundaries of the State of California. Consequently, the need for computing an interstate allocation percentage does not arise. It is still necessary, however, to compute a percentage figure to allocate the total capitalized income figure (as adjusted) to the taxable and the nontaxable categories. As with other companies, it is assumed that this capitalized income is distributed between these categories in the same ratio as are the historical costs of the physical property which produced the income. These historical costs are shown in Exhibit III. In Exhibit III, all of the items *above* line 23 represent taxable property; while all of the items between lines 24 and 30 represent nontaxable property. Some of the nontaxable items listed, however, are mere accounting items and do not represent physical property. These are not included in the computations by the Valuation Division. The physical property items in this section are licensed motor vehicles (line 26), the licensed motor vehicles that are part of ''Construction Work In Progress'' (line 28) and property on

United States military reservations (line 27). The figure for property on United States military reservations is included at $1,005,892 rather than at $1,003,481. The former is a preliminary figure while the latter is a final figure. These three nontaxable items are added to the figure in line 23, column 3 of Exhibit III, to give total physical property of $1,396,881,978. This becomes the denominator of the fraction. The numerator is simply $1,387, 259,042, the figure for the historical cost new of the taxable property. The result of this arithmetic is 99.311 percent, which is rounded to 99.3 percent and applied to the adjusted figure for capitalized income. The result of the latter calculation is the earnings evidence (one-year basis) that is transferred to Exhibit I.

As is true of all companies in this sample, the five-year-average evidence is computed in the same way as the one-year evidence, except that the basic income data must be taken from the records of previous years. In Exhibit IV the process of computing the earnings figure for capitalization is shown in lines 1 to 6, inclusive, columns 2 to 6, inclusive. The capitalization and adjustment processes are shown in lines 11 to 20, inclusive, columns 5 and 7.

For the one-year stock and debt computation there are a few items that require further explanation than has been offered to this point. First it must be noted that the data are based upon a preliminary report of the balance sheet for the year submitted to the Valuation Division by the company and *not* upon the balance sheet that appears in the annual report of the company to its stockholders. So far as is known, this is the only company assessed by the State Board of Equalization for which this is true. As already mentioned, the practice is justified by the Valuation Division on the grounds that the mechanics of valuing and of apportioning the value of this extremely large and complex company are so involved and time-consuming that it is necessary to begin the analysis before the final figures are published in the form of a stockholders' report. There are often marked differences between the preliminary balance sheet and that finally printed in the annual report of the company. However, no attempt was made in this study to analyze the difference that would be involved in the final answers for the one-year stock and debt evidence.

In the "Debts" section of Exhibit VI (lines 1 to 10, inclusive) the only item requiring further elaboration is that which appears on line 9, "Injuries and Damages Reserve." As the label indicates, this represents an account on the liabilities side of the balance sheet to provide for the payment of one or another sort of compensation for injuries sustained by employees and for damages to the property of others for which the company is liable.[2] It is assumed by the Valuation Division that, at the time the balance sheet is prepared, a certain portion of this account represents actual liabilities to other individuals or companies, i.e., liabilities which have not, as yet, been charged to the reserve account. Since this portion is an "outside" liability rather than an "inside" liability, it is legitimately considered to be part of the debt evidence of value. The technique for estimating *what* portion of the account shall be so considered involves an analysis of the company's history with respect to such claims. The figure which appears against this label in Exhibit VI is, then, strictly an estimate, more or less supported by past experience.

To Exhibit VI	*From*
Line 3, column 2	Exhibit VII, line 8, column 4
Line 4, column 3	Exhibit VII, line 22, column 4
Line 6, column 2	Exhibit VIII (Liabilities), line 6, column 2
Line 7, column 2	Exhibit VIII (Liabilities), line 23, column 2
Line 8, column 2	Exhibit VIII (Liabilities), line 25, column 1 at 80% plus line 26, column 1 at 50%
Line 9, column 2	Based on Exhibit VIII (Liabilities), line 31, column 1 (see explanation below)
Line 13, column 2	Exhibit VIII (Assets), line 7, column 1, plus line 5, column 1 (rounded) plus $2,900,000 for line 6, column 1
Line 15, column 2	Exhibit VIII (Assets), line 8, column 1
Line 16, column 2	Exhibit VIII (Assets), line 9, column 1
Line 18, column 1	Exhibit VIII (Assets), line 19, column 2
Line 19, column 1	Exhibit VIII (Assets), line 17, column 1 at 90%
Line 20, column 2	Exhibit VIII (Assets), line 23, column 1 at 20%
Line 23 (the allocation percentage)—See explanation below	

In considering the assets side of the balance sheet (Exhibit VIII) the Valuation Division clearly attempts to locate those items that are not taxable and to deduct them from the computed "Debt" figure. The real purpose of the section of Exhibit VI below line 11 is thus the separation of the taxable property from the nontaxable property. Referring once again to the balance sheet, it is obvious that the important taxable items are the utility plant (line 2); other physical property (line 4); and materials and supplies (line 17). All other asset items are, at one point or another, deducted from the "debts" figure. Cash, of course, is taxable, but it is not considered to be part of the unit value of the enterprise. It is included in the deductions at this point. So too, those items that represent solvent credits are taxable, but are subject to a separate treatment in the tax law and must, as a result, be deducted at this point. Ordinarily, the nonoperating property would also be deducted, but in the present case it is allowed to remain in order to make the stock and debt evidence comparable with the earnings and cost evidences.

The first deduction accounts for the securities issued by other companies and owned by the Pacific Gas and Electric Company. These are listed as lines 5, 6, and 7 on Exhibit VIII. As noted in the tabular explanation above, the "other investments" (line 7) are taken at the figure listed for them in the balance sheet; the securities of the Vallejo Electric Light and Power Company (line 5) were rounded down from $1,626,635 to

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[2] See the Uniform System of Accounts for Electrical Corporations, *op. cit.*, p. 37.

$1,600,000 (for no apparent reason other than the supposition that the latter figure represents market value); and the securities of the Standard Pacific Gas Lines, Inc., were fixed at an arbitrary $2,900,000. This last is 50 percent of the estimated assessment of the company for the present year, although the estimate itself is based upon the previous year's data. (There is no ready explanation for this figure either, except that the Pacific Gas and Electric Company has a 50 percent ownership of this company and that the figure is supposed to represent the market value of these securities.)

None of the others items under the label "Assets Subtracted from Debts" appears to raise any problems unique with this company. However, attention is called once again to the fact that both the deferred credits item (line 8) and the deferred debits item (line 20) are fixed at arbitrary percentages of their book figures. The former, since it is really a combination of two accounts, is established at 80 percent of "Customers Advances for Construction" (line 25, Exhibit VIII Liabilities); the latter is fixed at 20 percent of the "Total Deferred Debits" (line 24, Exhibit VIII, Assets). The only other fractional amount is that for materials and supplies (line 17, Exhibit VIII, Assets) which is taken at an arbitrary 90 percent to represent the market value of these items.

It will be noticed that the allocation percentage (line 23, Exhibit VI) to account for nontaxable property, is different as applied to the stock and debt evidence from that applied to the earnings evidence. For the former it is 99.1 percent, while for the latter it is 99.3 percent. As suggested in the discussion of this point in Chapter IX, this difference is accounted for by the fact that the stock and debt evidence reflects the value of purchases of supplies and equipment by the company which, as yet, have not arrived within the boundaries of California. These are clearly not reflected in the earnings evidence, so no adjustment need be made at that point. The additional property is shown in the "Progress Payments" figure included in construction work in progress (line 28, column 3 of Exhibit III). This figure of $2,640,579 is added to the motor vehicles and other nontaxable items to yield the following calculation: $1,387,259,042 divided by $1,399,520,146 equals 99.12 percent.

The computation of the five-year-average stock and debt evidence is not shown in Exhibit VI as it is in the comparable exhibits for the other companies in the sample, because the method of arriving at this figure in 1950 was quite different from that used with any of the other companies. It will be recalled that, for the Pacific Telephone and Telegraph Company (the only other company discussed so far for which a stock and debt evidence is computed), the Valuation Division first computed the final stock and debt value including motor vehicles *for each year* of the five-year period. The five-year average was then simply computed directly from these figures. For the Pacific Gas and Electric Company, however, the Division first found the monthly high-and-low securities prices for each year over a five-year period and determined the average at this level. This five-year-average *price* was then multiplied by the securities outstanding as of the thirty-first of December, 1950, to obtain a *value* figure. This value figure was then adjusted for additional liabilities and "assets subtracted from debts" by determining what these adjustments were for 1950 and then applying them to the five-year average. This result was then, of course, adjusted for licensed motor vehicles and other nontaxable items, as before.

The details of the five-year-average computation are not shown for the Pacific Gas and Electric Company for 1950. The Valuation Division's computations show a figure of $1,328,214,251 for the five-year average of the "Value Based on Sales." (To repeat, this is determined by averaging the monthly high-and-low securities prices over a five-year period and then multiplying the five-year-average *price* by the securities outstanding on December 31, 1950.) This is the five-year-average equivalent of the figure that appears in line 4, column 3 of Exhibit VI, the one-year figure. As can be seen from Exhibit VI, the total stock and debt value including motor vehicles is $1,266,932,574, while the "Value Based on Sales" figure is $1,289,092,354. The difference between these two figures is $22,159,780 and this, of course, is a negative adjustment. This adjustment is then applied to the five-year-average figure by subtracting $22,159,780 from $1,328,214,251. The result is the adjusted five-year average of $1,306,054,471. To this the 99.1 percent allocation factor is applied to remove the influence of licensed motor vehicles and other nontaxable property to give a final answer of $1,294,299,981. This is the figure that is reported in Exhibit I (line 4, columns 2 and 4) as the five-year-average stock and debt value.

In response to questions as to why this technique was used for the Pacific Gas and Electric Company but not for other companies, the Valuation Division stated that the calculations were incorrectly applied and that the normal procedures should have been followed. Indeed, there was evidence that the alternative calculations had been made and considered in the weighting process and that the calculations described above were given little or no consideration in the final determination of the unit value for that year. This, of course, only serves to highlight once again the subjective character of the final decision on the unit value and the fact that it conforms to no set formula or pattern.

Exhibit VII shows the calculation of the figures that are taken to be the "Value Based on Sales" for the one-year value. For the present company, this exhibit must be taken to be a complete representation in and of itself. Since there are 20 separate securities shown in Exhibit VII, the exhibit (which would normally be Exhibit VIII) showing the calculation of column 3, Exhibit VII by averaging the monthly high-and-low prices of each security has been omitted. The data were checked, of course, and, with the exception of one small computational error found to be correct. The only other feature of this exhibit worth noting is that the price data for the common and the preferred stock were taken from the San Francisco Stock Exchange, while the data for the bonds were taken from the New York market.

THE PACIFIC GAS AND ELECTRIC COMPANY—1952

Allowing for the over-all differences between the valuation of the Pacific Gas and Electric Company and the valuation of the other companies in the sample, the changes made in the 1952 valuation as opposed to the 1951 valuation are much the same for the Pacific Gas and Electric Company as for the other companies. As was true for these other companies, the major changes applied to the Pacific Gas and Electric Company consist of the following: (1) The use of more background data in the determination of a ''basic'' interest rate for the capitalization of net income; (2) the calculation of additional income evidence to show the capitalization of income before income taxes as well as before depreciation; (3) a more careful treatment of the land reversion adjustment; and (4) a sharper distinction between the operative and the nonoperative property of the company.

Exhibits IX to XVI, inclusive, show the 1952 valuation of the Pacific Gas and Electric Company. As before, they are presented as a group. Any necessary explanation is set forth in the text which follows Exhibit XVI.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT IX

COMPUTATION OF "SYSTEM" VALUE

1952

		Earnings Capitalized at 5% Before Depreciation		*Earnings Capitalized at 5% Before Depreciation and Income Tax*		
	Type of Value Evidence and System of Weighting	*1-Year Basis (1)*	*5-Year Average Basis (2)*	*1-Year Basis (3)*	*5-Year Average Basis (4)*	*Horizontal Averages (unweighted) (5)*
1	(H) Historical cost new less depreciation	$1,251,496,363	$1,251,496,363	$1,251,496,363	$1,251,496,363	--------
2	(R) Reproduction cost new less depreciation	1,844,700,571	1,844,700,571	1,844,700,571	1,844,700,571	--------
3	(E) Capitalized earnings	1,172,758,392	971,728,300	1,241,099,401	974,505,897	--------
4	(S) Stock and debt	1,327,867,874	1,115,040,922	1,327,867,874	1,115,040,922	--------
5	Unweighted averages	$1,399,205,800	$1,295,741,500	$1,416,291,000	$1,296,435,900	$1,351,918,550
6	Weighted average: H = 20%; R = 10%; E = 50%; S = 20%	$1,286,722,200	$1,143,641,700	$1,320,892,700	$1,145,030,500	$1,224,071,775
7	Weighted average: H = 10%; R = 10%; E = 40%; S = 40%	1,309,870,200	1,144,327,400	1,337,206,600	1,145,438,500	1,234,210,675
8	Weighted average: H = 30%; R = 30%; E = 30%; S = 10%	1,413,473,400	1,331,881,700	1,433,975,700	1,332,715,000	1,378,011,450
9	Weighted average: H = 10%; R = 10%; E = 20%; S = 60%	1,340,892,100	1,172,990,000	1,354,560,300	1,173,545,500	1,260,496,975
10	Vertical averages	$1,350,032,700	$1,217,716,500	$1,372,585,300	$1,218,633,100	$1,289,741,900
11	System value for 1951	**$1,221,056,740**				
12	System value for 1952	**$1,225,000,000**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT X

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION (California Only)

1952

	Type of Property	*Historical Cost New (1)*	*Ratio (2)*	*Reproduction Cost New (3)*	*Condition (Percentage) (4)*	*Historical Cost New Less Depreciation (5)*	*Reproduction Cost New Less Depreciation (6)*
1	Plant and equipment						
2	Land	$42,300,911	---	$25,500,000	100	$42,300,911	$25,500,000
3	Intangible capital	1,149,043	1.94	2,229,143	90–85	1,034,139	1,894,772
4	Additions and betterments, 1950, gross	210,700,000	1.09	229,663,000	97	204,379,000	222,773,110
5	Additions and betterments, 1951, gross	155,480,118	1.00	155,480,118	99	153,925,317	153,925,317
6	Other	986,886,697	1.94	1,914,560,192	74–69	730,296,156	1,321,046,532
7	Total plant and equipment	$1,396,516,769		$2,327,432,453		$1,131,935,523	$1,725,139,731
8	Construction work in progress—land	$3,000,000	1.00	$3,000,000	100	$3,000,000	$3,000,000
9	Construction work in progress—other	99,735,525	1.00	99,735,525	100	99,735,525	99,735,525
10	Materials and supplies	18,694,794	1.00	18,694,794	90	16,825,315	16,825,315
11	Total to here	$1,517,947,088		$2,448,862,772		$1,251,496,363	$1,844,700,571
12	Miscellaneous physical property and plant held for future use						
13	Land	$4,750,772	---	$5,500,000	100	$4,750,772	$5,500,000
14	Other	335,258	1.50	502,887	85	284,969	427,454
15	Total miscellaneous physical property	$5,086,030		$6,002,887		$5,035,741	$5,927,454
16	Total owned, state-assessed	**$1,523,033,118**		**$2,454,865,659**		**$1,256,532,104**	**$1,850,628,025**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT XI

DETAIL OF HISTORICAL COST NEW AND BALANCE SHEET RECONCILIATION

1952

	Items	*Land* *(1)*	*Other* *(2)*	*Total* *(3)*
1	Electric department	$32,156,162	$1,036,955,220	$1,069,111,382
2	Gas department	6,005,608	283,210,949	289,216,557
3	Water department	366,225	10,306,796	10,673,021
4	Steam sales department	82,149	2,235,678	2,317,827
5	Common utility	3,690,767	32,887,327	36,578,094
6	Subtotal	$42,300,911	$1,365,595,970	$1,407,896,881
7	Other physical property	$4,750,772	$335,258	$5,086,030
8	Materials and supplies	--------	18,694,794	18,694,794
9	Construction work in progress	--------	102,979,332	102,979,332
10	Less: Estimated retirements	--------	(11,092,882)	(11,092,882)
11	Total to here	$47,051,683	$1,476,512,472	$1,523,564,155
12	Gas storage mains and holders	--------	$220,415	$220,415
13	Automobiles—not licensed	--------	27,002	27,002
14	Intangible capital	--------	1,149,043	1,149,043
15	Total to here	$47,051,683	$1,477,908,932	$1,524,960,615
16	Less: Public Utilities Commission reclassification	--------	(1,683,690)	(1,683,690)
17	Less: Correction [a]	--------	(243,807)	(243,807)
18	Total owned, state-assessed	**$47,051,683**	**$1,475,981,435**	**$1,523,033,118**
19	Nontaxable items			
20	Public Utilities Commission Account 102½	--------	--------	$15,530,949
21	Licensed motor vehicles	--------	--------	9,001,658
22	Property on United States military reservations	--------	--------	1,172,420
23	Construction work in progress—maintenance, etc. [b]	--------	--------	5,875,756
24	Plant held for future use, surveys, etc.	--------	--------	26,101
25	Other physical properties	--------	--------	656,140
26	Total to here	--------	--------	$1,555,296,142
27	Taxable items not accounted for on balance sheet			
28	Estimated retirements	--------	--------	$11,092,882
29	Less: Materials and supplies	--------	--------	(18,694,794)
30	Less: Automobiles not licensed	--------	--------	(27,002)
31	Less: Gas storage mains and holders	--------	--------	(220,415)
32	To balance	--------	--------	6
33	Plus correction [a]	--------	--------	243,807
34	Less: Other physical property	--------	--------	(5,251,115)
35	Utility plant per balance sheet	--------	--------	**$1,542,439,511**

NOTES: [a] Construction work in progress—land is too low by this amount.

[b] Includes maintenance, progress payments, licensed motor vehicles, etc.

SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1952.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT XII

COMPUTATION OF EARNINGS EVIDENCE
(System and California)
1952

	Items	*1951* *(1)*	*1950* *(2)*	*1949* *(3)*	*1948* *(4)*	*1947* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$52,740,917	$51,810,019	$39,634,410	$37,839,720	$34,998,350	--------	
3	Depreciation	31,609,982	27,073,986	24,979,660	22,923,322	22,294,709	--------	
4	Net before depreciation	$84,350,899	$78,884,005	$64,614,070	$60,763,042	$57,293,059	$69,181,015	
5	Federal income tax	$25,363,884	$19,006,013	$8,500,799	$13,053,872	$13,500,821	--------	
6	State income tax	1,876,343	1,194,981	1,299,713	1,371,486	1,693,943	--------	
7	Net before depreciation and taxes	**$111,591,126**	**$99,084,999**	**$74,414,582**	**$75,188,400**	**$72,487,823**	**$86,553,386**	
8	Expectancy: 23 years							
9	Capitalization rates							
10	(1) 5.000% interest + 2.414% depreciation = 7.414%							
11	(2) 7.414% annuity + 1.834% taxes = 9.248%							
13	Period							

12	Value computation	*1-Year Basis, 1951*		*5-Year Average*	
		Before depreciation	*Before depreciation and income taxes*	*Before depreciation*	*Before depreciation and income taxes*
14	Capitalization rate	7.414%	9.248%	7.414%	9.248%
15	Net income	$84,350,899	$111,591,126	$69,181,015	$86,553,386
16	Capitalized income	$1,137,724,561	$1,206,651,448	$933,113,232	$935,914,641
17	Adjustments				
18	Working capital (—)	$11,220,864	$11,220,864	$9,363,032	$9,363,032
19	Construction work in progress (+)	46,215,000	46,215,000	46,215,000	46,215,000
20	Land reversion (+)	10,093,600	10,093,600	10,093,600	10,093,600
21	System earning value including motor vehicles	$1,182,812,297	$1,251,739,184	$980,058,800	$982,860,209
22	California earning value excluding motor vehicles (apply 99.15%)	$1,172,758,392	$1,241,099,401	$971,728,300	$974,505,897

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT XIII

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE FOR THE SYSTEM

(Income Statement)

1952

		Amounts		
	Items	*(1)*	*(2)*	*(3)*
1	Electric department revenues	$189,364,571		
2	Gas department revenues	88,633,890		
3	Other operating revenue	1,500,269		
4	Total operating revenues		$279,498,730	
5	Maintenance and repairs	$13,674,312		
6	Power purchased	10,974,876		
7	Natural gas purchased	50,237,772		
8	Oil and other fuel purchased	10,877,279		
9	Other production expenses	7,687,603		
10	Transmission expenses	3,006,936		
11	Distribution expenses	14,654,200		
12	Customers' accounting and collection	11,027,834		
13	Sales promotion expense	2,368,009		
14	Provision for depreciation and amortization	31,609,982		
15	Administrative and general expenses	6,335,858		
16	Provision for doubtful accounts	360,000		
17	Provision for insurance and casualties	1,080,000		
18	Pension plan expenses	2,365,684		
19	Total operating expenses		166,260,345	
20	Net operating revenues			$113,238,385
21	Provision for federal income tax	$25,363,884		
22	Other taxes	35,133,583		
23	Total operating taxes			60,497,467
24	Net operating income			$52,740,918

SOURCE: Pacific Gas and Electric Company, 46th Annual Report, 1951.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT XIV

COMPUTATION OF STOCK AND DEBT EVIDENCE

1952

	Items	*Amounts*			
		(1)	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on sales				
3	Capital stock		$712,279,162		
4	Bonds		614,182,858		
				$1,326,462,020	
5	Value based on books				
6	Advances from affiliated companies		$279,980		
7	Current and accrued liabilities		66,853,753		
8	Customers' advances for construction		1,788,651		
9	Other deferred credits		498,355		
10	Reserve for injuries and damages		392,872		
				69,813,611	
11	Total debts				$1,396,275,631
12	Assets subtracted from debts				
13	Value based on sales				
14	Securities		$5,374,337		
15	Value based on books				
16	Physical property, other than utility plant		5,500,000		
17	Sinking funds		97,783		
18	Miscellaneous special funds		7,765		
19	Current assets				
20	Total	$64,267,804			
21	Less: Materials and supplies	19,530,029			
			44,737,775		
22	Deferred debits		225,000		
23	Total assets subtracted from debts				55,942,660
24	California stock and debt value including motor vehicles (100% Calif.)				**$1,340,332,971**
25	California stock and debt value excluding motor vehicles (apply 99.07%)				**$1,327,867,874**
26	5-year average stock and debt value				
27	1951	$1,326,462,020			
28	1950	1,289,092,354			
29	1949	1,097,388,704			
30	1948	944,114,973			
31	1947	901,127,933			
32	Total	**$5,558,185,984**			
33	Average	$1,111,637,197			
34	Adjustment (+)	13,870,951			
35	California stock and debt value including motor vehicles	**$1,125,508,148**			
36	California stock and debt value excluding motor vehicles (apply 99.07%)	**$1,115,040,922**			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT XV

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS
(Value Based on Sales)

1952

	Issues	*Number of Shares Outstanding (1)*	*Par Value of Issue (2)*	*Average of Monthly High and Low Prices (3)*	*Computed Value (4)*
1	Common stock	11,356,498	--------	$33.1615	$376,598,508
2	Preferred stock—6% cum.	4,211,662	--------	32.9740	138,875,343
3	Preferred stock—5½% cum.	1,173,163	--------	29.8281	34,993,223
4	Preferred stock—5% cum.	400,000	--------	27.7396	11,095,840
5	Preferred stock—5% red. cum.	2,500,000	--------	27.1875	67,968,750
6	Preferred stock—5% red. cum. "A"	1,586,014	--------	27.2188	43,169,398
7	Preferred stock—4.80% red. cum. "A"	1,500,000	--------	26.3854	39,578,100
8	Total to here				$712,279,162
9	Series I bonds—3½—66	--------	$927,000	103.7292	$961,570
10	Series J bonds—3—70	--------	18,669,000	101.1302	18,879,997
11	Series K bonds—3—71	--------	23,839,000	100.8333	24,037,650
12	Series L bonds—3—74	--------	109,548,000	100.2656	109,838,959
13	Series M bonds—3—79	--------	77,975,000	100.0469	78,011,570
14	Series N bonds—3—77	--------	48,182,000	100.2292	48,292,433
15	Series O bonds—3—75	--------	11,250,000	100.1800	11,270,250
16	Series P bonds—2¾—81	--------	24,088,000	95.9583	23,114,435
17	Series Q bonds—2⅞—80	--------	67,459,000	97.8073	65,979,827
18	Series R bonds—3⅛—82	--------	70,375,000	102.3229	72,009,741
19	Series S bonds—3—83	--------	77,520,000	100.2240	77,693,645
20	Series T bonds—2⅞—76	--------	77,475,000	98.5000	76,288,250
21	San Joaquin Light and Power bonds—6—52	--------	7,667,000	101.7938	7,804,531
22	Total				**$1,326,462,020**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

PACIFIC GAS AND ELECTRIC COMPANY—EXHIBIT XVI

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1952

1	ASSETS	(1)	(2)
2	Utility plant		$1,542,439,511
3	Investment and fund accounts		
4	Other physical property	$5,251,115	
5	Securities of subsidiary companies	699,751	
6	Securities of Vallejo Electric Light and Power Company	1,626,635	
7	Advance to subsidiary companies	161,709	
8	Securities of Standard Pacific Gas Line, Inc.	4,179,000	
9	Other investments	848,410	
10	Sinking funds	97,783	
11	Miscellaneous special funds	7,765	
12	Total investment and fund accounts		12,872,168
13	Current and accrued assets		
14	Cash	$15,416,578	
15	Miscellaneous special deposits	291,606	
16	Working funds	107,470	
17	Temporary cash investments	3,000,000	
18	Accounts receivable	24,716,355	
19	Interest and dividends receivable	30,430	
20	Materials and supplies	19,530,029	
21	Prepayments	1,175,337	
22	Total current and accrued assets		64,267,804
23	Deferred debits		
24	Unamortized debt discount and expense	$9,740,375	
25	Preliminary survey and investigation charges	104,460	
26	Other	1,500,103	
27	Total deferred debits		11,344,939
28	Capital stock discount and expense		11,559,447
29	Reacquired long-term debt		2,446,000
30	Total assets		$1,644,929,869[a]

1	LIABILITIES	(1)	(2)
2	Capital stock		
3	Common	$283,912,450	
4	First preferred	284,270,975	
5	Total capital stock		$568,183,425
6	Premium on capital stock		28,723,700
7	Bonds		
8	In treasury	$2,446,000	
9	In hands of public	614,974,000	
10	Total bonds		617,420,000
11	Advances from affiliated companies		279,980
12	Current and accrued liabilities		
13	Accounts payable	$11,666,777	
14	Drafts outstanding	1,507,329	
15	Dividends declared	5,678,315	
16	Matured long-term debt	42,875	
17	Matured interest	141,811	
18	Customers' deposits	399,567	
19	Taxes accrued	44,342,578	
20	Interest accrued on long-term debt	1,659,076	
21	Other	1,415,425	
22	Total current and accrued liabilities		66,853,753
23	Deferred credits		
24	Customers' advances for construction	$2,104,295	
25	Other	996,711	
26	Total deferred credits		3,101,006
27	Reserves		
28	For depreciation and amortization	$301,325,813	
29	For uncollectible accounts	1,437,068	
30	For insurance and injuries and damages	920,872	
31	For investment in Standard Pacific Gas Line, Inc.	3,636,679	
32	Total Reserves		307,320,432
33	Contributions in aid of construction		3,816,457
34	Surplus		
35	Capital	$627,217	
36	Earned	48,603,899	
37	Total surplus		49,231,116
38	Total liabilities		$1,644,929,869[a]

NOTE: [a] Because of rounding of figures, totals may not be exact.

SOURCE: Pacific Gas and Electric Company, Report to the Valuation Division, as of December 31, 1951.

To	*From*
Exhibit IX	
Line 1	Exhibit X, line 11, column 5
Line 2	Exhibit X, line 11, column 6
Line 3, column 1	Exhibit XII, line 22, column 1
Line 3, column 2	Exhibit XII, line 22, column 5
Line 3, column 3	Exhibit XII, line 22, column 3
Line 3, column 4	Exhibit XII, line 22, column 7
Line 4, columns 1 and 3	Exhibit XIV, line 25, column 4
Line 4, columns 2 and 4	Exhibit XIV, line 36, column 1

Exhibit IX shows the final unit value of the operative property of the Pacific Gas and Electric Company for 1952 to be $1,225,000,000. This represents an increase of $3,943,260 or 0.3229 percent over the previous year. The highest figure on the weighting sheet is, as usual, that for reproduction cost new less depreciation (line 2) and the lowest is that for the five-year average earnings capitalized at 5% before depreciation (line 3, column 2). The difference between these two figures is $872,972,271, with the smaller being only 52.6767 percent of the larger. Among the weighted figures the highest is that in line 8, column 3 and the lowest is that in line 6, column 2. Here, the absolute difference between high and low is $290,334,000, with the smaller being 79.7532 percent of the larger. The simple average of the eight basic evidences of value is $1,237,399,715, *or just 1.012 percent higher than the unit value determined by the weighting process and the processes of subjective consideration.*

It must also be noted that the weighting sheet used by the Valuation Division contains computations to show earnings capitalized by both of the techniques shown above but at a basic interest rate of 5½%. The additional computations also show the application of a markedly different system of weights. It is impossible to discover, however, which of the alternative computations played the greater role in the determination of the final unit value, since, as has been noted several times, this determination depends heavily upon subjective decisions made by the Valuation Division of the State Board of Equalization.

To	*From*
Exhibit X	
Line 2, column 1	Exhibit XI, line 6, column 1
Line 3, column 1	Exhibit XI, line 14, column 2
Line 4 plus line 5 plus line 6 of column 1	Exhibit XI, column 2 (line 6 minus line 10 plus line 12 plus line 13 minus line 16)
Line 8 plus line 9, column 1	Exhibit XI, line 9 minus line 17, column 2
Line 10, column 1	Exhibit XI, line 8, column 2
Line 13, column 1	Exhibit XI, line 7, column 1
Line 14, column 1	Exhibit XI, line 7, column 2
Line 16, column 1	Exhibit XI, line 18, column 3
Column 2	Computed from cost index evidence and by physical appraisals—See Appendix B
Column 4	Computed from "life expectancy" exhibits and by physical appraisals—See Appendix B

The important thing to notice about this Exhibit (as it relates to Exhibit IX) is that the figures which are considered to be evidences of the unit value are taken from line 11 rather than from line 16. In this way, the cost evidences are taken to refer only to operative property, for the nonoperative property is listed *below* line 11.

The figure of 194 which appears as the ratio for Intangible Capital (Exhibit X, line 3, column 2) is purely an estimation and cannot be endowed with any scientific implications. It is, of course, designed to show how much it would cost under present conditions to obtain licenses, patent rights, and so on. Furthermore, there seems to be no clear reasoning behind the assumption that these items can depreciate, as is implied by the less-than-100 figure for the condition percent (line 3, column 4). It will also be noticed that the figure for the "Gross Additions and Betterments" in 1950 is listed as $210,700,000 for the purposes of the 1952 valuation (line 4, column 1 of Exhibit X) and as $210,998,254 for the 1951 valuation (line 3, column 1 of Exhibit II). There is no ready explanation for this difference. It may be that the figure was "rounded down" for ease of computation, although why this particular figure was chosen is not known. As far as column 1 itself is concerned, of course, this change in the figure makes no difference, since the "Other" category on line 6, column 1 of Exhibit X is larger by this amount than it would have been if the correct figure had been inserted. But since different ratios and condition percent figures are applied to the "Gross Additions and Betterments" than to the "Other" property, it *does* make a difference to the computations which lead to columns 3, 5, and 6.

Exhibit XI is similar to Exhibit III in that it represents a synthesis of several tables which appear in the work sheets of the Valuation Division. One or two differences should be noted, however. The item for "Intangible Capital" (Exhibit XI, line 14, column 2) is listed separately on Exhibit X (line 3, column 1) and is "factored up" along with the items of property in that category. The "Correction" item in line 17, column 2 of Exhibit XI is inserted to reconcile the summary control statement with the figure for "Total Owned, State Assessed." The latter is, for this company, based upon preliminary information. After this information was received and utilized, it was discovered that this preliminary information had understated the figure for "Construction Work in Progress" (line 9, column 2 of Exhibit XI) by $243,807. This means, of course, that the Valuation Division was too low in its historical cost figures by this amount. In all other respects, Exhibit XI is similar to its counterpart for 1951 for this company, Exhibit III.

To	*From*
Exhibit XII	
Line 2, column 1	Exhibit XIII, line 24, column 3
Line 3, column 1	Exhibit XIII, line 14, column 1
Line 5, column 1	Exhibit XIII, line 21, column 1
Line 6, column 1	Financial report of the company to the Valuation Division
Line 8	Computed from "life expectancy" tables and by physical appraisals
Lines 10 and 11	The "basic" rate is assumed, the annuity factor is computed from the "basic" rate, and the tax factor is computed from the exhibits shown in Appendix C
Line 18, columns 1 and 3	Exhibit XIII (line 19, column 2 minus line 14, column 1) divided by 12
Line 19, columns 1, 3, 5, and 7	Exhibit XI (line 9, column 2 minus line 17, column 2), rounded to $102,700,000 at 45%
Line 20, columns 1, 3, 5, and 7	Exhibit X (line 2, column 6 plus line 13, column 6) at 32.56%. See explanation below
Line 22 (allocation percentage)	Exhibit XI: line 18, column 3 divided by (line 18, column 3 plus line 21, column 3 plus $2,844,298 of line 23, column 3 plus line 22, column 3). See explanation below.

It is obvious that Exhibits XII and XIII must be taken together as the basis of the income evidence used in the computation of the final unit value. Exhibit XIII provides the necessary information regarding net income, and Exhibit XII shows the manipulation of this information (the processes of capitalization and adjustment) to arrive at the final figures transferred to Exhibit IX.

All of the material in Exhibit XIII and down to line 20 on Exhibit XII has been explained in other sections of this chapter and need not be discussed at this point. The "Land Reversion" adjustment on line 20 of Exhibit XII does, however, require a word or two of further explanation. The land in question is that land owned by the company as of December 31, 1951, taken at its so-called reproduction cost new less depreciation (the same thing as reproduction cost new in this case). The basic figures for this computation are, then, contained in Exhibit X, the "Cost Evidence" sheet. It will be noticed that the amount of land used in this computation includes that listed in the operative category of "Plant and Equipment" and the nonoperative category of "Miscellaneous Physical Property." This must be counted as an error, however, in view of the fact that the figures are used to adjust operative income only. Clearly, the figure which *should* be used is the $25,500,000 shown for the operative land instead of $31,000,000 actually used.

As pointed out in other sections of this chapter (and in Chapter IX), it is assumed that this amount of land is undepreciable and that, at the end of 23 years, when all other property presently in existence is estimated to have zero value, the land will still have a value of $31,000,000. It is then merely necessary to find the present value of this $31,000,000, assuming that the interest rate to be used in this computation is the same as that applied in the capitalization of other income. In this case, the present value is determined from the following formula: $\text{Present Value} = \$31{,}000{,}000\ (1-.05)^{-23}$. From precomputed tables, this becomes $\text{Present Value} = \$31{,}000{,}000 \times (.32557) = \$10{,}092{,}670$. This is the land value which must be added to the capitalized income figure in view of the fact that the latter contains no land element in the 23-year capitalization period. The figure used by the Valuation Division is actually $10,093,600, a difference presumably explained as a result of rounding.

The allocation percentage (shown in line 22 of Exhibit XII) is determined from the historical cost new records which are summarized in Exhibit XI. As before, an attempt is made to distinguish between the taxable items of physical property and the nontaxable items of physical property and to determine a percentage which may be applied to the adjusted figure for capitalized income. On Exhibit XI the taxable physical property is shown in line 18, column 3 as "Total Owned, State Assessed." This is the numerator of the fraction. The denominator is determined by adding to this total taxable figure the amount shown for licensed motor vehicles (line 23, column 3), a portion of the item labeled "Construction Work in Progress, Maintenance, etc." (line 23, column 3), which represents the licensed motor vehicles carried in the "Construction Work in Progress" category, and the amount shown on line 22, column 3 as the property on United States military reservations. In these calculations the denominator appears as $1,536,051,494. The percentage adjustment computed from this fraction is the 99.15% shown on line 22 of Exhibit XII and is applied to capitalized income on the assumption that the income is allocated between the taxable and the nontaxable categories of property in the same ratio as the allocation of historical costs between the taxable and the nontaxable categories of property.

To Exhibit XIV	*From*
Line 3, column 2	Exhibit XV, line 8, column 4
Line 4, column 3	Exhibit XV, line 22, column 4
Line 6, column 2	Exhibit XVI, line 11, column 2 (Liabilities)
Line 7, column 2	Exhibit XVI, line 22, column 2 (Liabilities)
Line 8, column 2	Exhibit XVI, line 24, column 1 (Liabilities) taken at 85 percent
Line 9, column 2	Exhibit XVI, line 25, column 1 (Liabilities) taken at 50 percent
Line 10, column 2	Exhibit XVI, line 30, column 1 (Liabilities)—estimated
Line 14, column 2	Exhibit XVI, column 1 (Assets: line 5 plus line 6 taken at $1,646,967 plus line 7 plus line 8 taken at $2,860,000 plus line 9 taken at $5,910). See explanation below.
Line 16, column 2	Exhibit XVI, line 4, column 1 (Assets)—estimated
Line 17, column 2	Exhibit XVI, line 10, column 1 (Assets)
Line 18, column 2	Exhibit XVI, line 11, column 1 (Assets)
Line 20, column 1	Exhibit XVI, line 22, column 2 (Assets)
Line 21, column 1	Exhibit XVI, line 20, column 1 (Assets)
Line 22, column 2	Exhibit XVI, line 26, column 1 (Assets) taken at 15 percent and rounded
Line 25 (allocation percentage)	Exhibit XI, line 18, column 3 divided by (line 18 column 3 plus line 21 column 3 plus $2,844,298 of line 23 column 3 plus line 22 column 3 plus $1,322,680 of line 23 column 3). See explanation below
Line 27, column 1	Exhibit XIV, line 4, column 3
Line 34, column 1	Exhibit XIV, line 24, column 4 minus line 4, column 3.

Exhibit XV and its relationship to Exhibit XIV are the same in their basic aspects as those comparable exhibits which have already been discussed. As was the case for the 1951 valuation of the Pacific Gas and Electric Company, it is necessary for the 1952 valuation to omit the exhibit of the computations which lie behind the figures on Exhibit XV. Once again, however, these computations were checked and found to be correct. Exhibit XV itself contains one small computational error, for the figure in line 20, column 4, should read $76,312,875 rather than $76,288,250.

Exhibit XVI, also containing some of the detail behind Exhibit XIV, is the balance sheet of the Pacific Gas and Electric Company for the calendar year 1951. Like its counterpart for the calendar year 1950, this is a *preliminary* statement, and as a result, differs in certain notable respects from the balance sheet finally published in the annual report of the company to the stockholders.

Unlike the 1950 preliminary balance sheet, however, the 1951 statement is *not* a consolidated statement but refers to the Pacific Gas and Electric Company only. This appears to have been the result merely of faulty communication between the company and the Valuation Division.

The figure which appears in line 14, column 2 of Exhibit XIV, involving the estimation of the market values of the various securities of other companies in the portfolios of the Pacific Gas and Electric Company, is based upon other calculations made by the Valuation Division, and represents a mixture of book figures, market data, and sheer estimation. The necessary information behind these calculations is contained in a separate communication from the company to the division showing the book figures of the several types of securities held by the Pacific Gas and Electric Company. The common stock of the Valley Electric Supply Company and ''to certain unknown parties'' are taken at their book figures. The Pacific Gas and Electric Company's extensive holdings of the common stock of the Vallejo Electric Light and Power Company, however, are included at an estimated market value which is some $20,000 higher than the book figures. The technique used for estimating the market value of the Pacific Gas and Electric Company's holdings of the securities of the Standard Pacific Gas Line Company is much the same in 1952 as it was in 1951 and involves the computation of one-half of the market value of the property assessed to the subsidiary company in 1951 by the Valuation Division.

Once again it is obvious that the allocation percentage applied to the stock and debt evidence (line 25, Exhibit XIV) is different from that applied to the earnings evidence (line 22, Exhibit XII), with the former being smaller than the latter. The only difference between these two calculations is the addition to the denominator of $1,322,680 for ''Progress Payments'' in the case of the stock and debt evidence. As indicated earlier, progress payments represent the purchase of supplies and equipment which have not yet arrived within the boundaries of the State of California.

The details of the five-year-average computation were not shown for the Pacific Gas and Electric Company for 1950. In the textual explanation it was pointed out that these details were markedly different for the Pacific Gas and Electric Company than for the other companies under examination, and that this was due to an error by the Valuation Division. In the 1951 valuations the techniques are a good deal closer to those applied to the other companies although, as will be shown, they are still different in some important respects. The calculations are, nevertheless, included as part of Exhibit XIV.

In all other cases discussed so far, the averaging takes place *after* the stock and debt value has been computed but before the adjustment for motor vehicles or for property outside the State. In the case of Pacific Gas and Electric Company, however, the averaging takes place as soon as the ''Value Based on Sales'' in the ''Debts'' section has been computed. This is shown by the fact that the 1951 element in the five-year-average comes from line 4, column 3 of the one-year computation. The figures for 1947 to 1950, inclusive, come from similar points in the calculations for these years. The average figure shown in line 33, column 1 is, then, really the five-year-average of the ''Value Based on Sales.'' To account for all subsequent items in the computation, i. e., all other debts and all of the ''Assets Subtracted from Debts,'' the Valuation Division determined the difference between the ''Value Based on Sales'' figure and the final ''California Stock and Debt Value including Motor Vehicles'' figure, and considered this difference as an ''adjustment'' to the five-year-average just computed. This adjustment may, of course, be either positive or negative. In our earlier terminology we have indicated the ''adjustments'' character of the items labeled ''Assets Subtracted from Debts.'' It is hard to see, however, how the term ''adjustments'' could be applied to those *debt* items extracted from the liabilities side of the balance sheet which are based upon book figures, for these are clearly elements of unit value in every sense of the term. They are inserted at their *book* figures merely because no satisfactory market data exist for these items. They are nevertheless, considered to be parallel elements of value. Although they stand lower on the scale of theoretical reputability than do the market data, they should still be considered to be fully accredited representatives of value in the five-year-average calculations.

This discussion merely indicates that, while there is a good deal to be said for averaging over the selected period at the level of ''Total Debts'' (line 11, column 4 in Exhibit XIV) and considering the remaining items as ''adjustments'' to the average, there is little to be said for averaging at the level of ''Value Based on Sales'' (line 4, column 3 of Exhibit XIV). As was just explained, it is the latter technique that is used by the Valuation Division in the 1951 valuation of the Pacific Gas and Electric Company. As for the still more important question of why a different averaging technique was used for the Pacific Gas and Electric Company than for the other companies, no satisfactory answer is available. In this, as in many other incidental matters of valuation, the Pacific Gas and Electric Company seems to be looked upon as a somewhat unique enterprise.

The Pacific Gas and Electric Company valuations (for both of the years reported above) are revealing in one other sense. The magnitude of the Company and the magnitude of the valuation problem which it presents highlight the timing problems which face the Valuation Division. As has already been shown, many of the statements submitted by the company to the division are preliminary reports, and for this reason are bound to be inadequate in some respects. The question arises, however, as to whether it would be possible to make use of *final* reports when the processing of the data following the receipt of the reports is of such a long and complex nature .This problem does, to be sure, arise with other companies. It is merely illustrated in rather bold outline in the case of this, the largest of the state-assessed taxpayers.

THE SAN DIEGO GAS AND ELECTRIC COMPANY—1951

The second of the gas and electric companies selected for this sample contains no special problems of valuation. The techniques of valuation and, consequently, the exposition in this report, are essentially the same as those applied to the other companies (excepting the Pacific Gas and Electric Company) for this year. The usual method of presentation is utilized below. The exhibits for the 1951 valuation are presented as a group and are followed by a shorthand description of the relationship between the exhibits and by a textual explanation of any points which need further development.

Nine exhibits are required in the illustration of the valuation of this company for each of the years selected. Of these nine exhibits, Exhibit I is basic since it shows the final calculation of the unit value of the company from the "basic" evidences of value. The remaining eight exhibits show the calculation of the evidences themselves and for this reason may be interpreted as the detail of the figures which appear on Exhibit I. Exhibits II and III show the calculation of the cost evidences of value: Exhibits IV and V show the calculation of the earnings evidences of value: and Exhibits VI, VII, VIII and IX show the calculation of the stock and debt evidences of value. The same tabular arrangement applies to the 1952 valuation as well.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT I

COMPUTATION OF "SYSTEM" VALUE

1951

		Earnings Capitalized at 5%		*Earnings Capitalized at 5½%*		
	Type of Value Evidence and System of Weighting	*1-Year Basis (1)*	*5-Year Average Basis (2)*	*1-Year Basis (3)*	*5-Year Average Basis (4)*	*Horizontal Averages (unweighted) (5)*
1	**(H) Historical cost new less depreciation**	$77,331,310	$77,331,310	$77,331,310	$77,331,310	--------
2	**(R) Reproduction cost new less depreciation**	112,092,083	112,092,083	112,092,083	112,092,083	--------
3	**(E) Capitalized earnings**	81,704,528	66,177,862	78,404,096	63,493,684	--------
4	(S) Stock and debt	78,624,795	60,613,539	78,624,795	60,613,539	--------
5	Unweighted average	$87,438,100	$79,053,700	$86,613,000	$78,382,600	$82,871,850
6	Weighted average: H = 20%; R = 10%; E = 50%; S = 20%	$83,252,800	$71,887,100	$81,602,500	$70,545,000	$76,821,850
7	Weighted average: H = 10%; R = 10%; E = 40%; S = 40%	83,074,000	69,658,800	81,753,800	68,585,200	75,767,950
8	Weighted average: H = 30%; R = 30%; E = 30%; S = 10%	89,200,900	82,741,800	88,210,700	81,936,500	85,522,475
9	Weighted average: H = 10%; R = 10%; E = 20%; S = 60%	82,458,100	68,546,000	81,798,100	68,009,100	75,202,800
10	Vertical averages	$85,084,800	$74,377,500	$83,995,600	$73,491,700	**$79,237,400**
11	System value for 1950	**$68,480,320**				
12	System value for 1951	**$77,000,000**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT II

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION

1951

	Type of Property	*Historical Cost New (1)*	*Ratio (2)*	*Reproduction Cost New (3)*	*Condition (Percentage) (4)*	*Historical Cost New Less Depreciation (5)*	*Reproduction Cost New Less Depreciation (6)*
1	Plant and equipment						
2	Land	$1,576,772	---	$1,475,000	100	$1,576,772	$1,475,000
3	Intangible plant	44,224	1.77	78,276	96–95	42,455	74,362
4	Additions and betterments, 1949, gross	10,316,537	1.03	10,626,033	97	10,007,041	10,307,252
5	Additions and betterments, 1950, gross	14,353,430	1.00	14,353,430	99	14,209,896	14,209,896
6	Other	71,863,533	1.77	127,198,453	67–65	48,148,567	82,678,994
7	Total plant and equipment	$98,154,496		$153,731,192		$73,984,731	$108,745,504
8	Construction work in progress	$2,185,403	1.00	$2,185,403	100	$2,185,403	$2,185,403
9	Materials and supplies	1,290,195	1.00	1,290,195	90	1,161,176	1,161,176
10	Total owned, state-assessed	**$101,630,094**		**$157,206,790**		**$77,331,310**	**$112,092,083**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT III

DETAIL OF THE COMPUTATION OF COST EVIDENCE

(Summary Control)

1951

	Property Items by Department	*Assessed by State*					
		Land (1)	*Other* (2)	*Total* (3)	*Licensed Motor Vehicles* (4)	*Other* [a] (5)	*Total Within Exterior Bounds of California* (6)
1	Electric department	$671,687	$69,906,209	$70,577,896	--------	$597,831	$71,175,727
2	Gas department	187,402	22,695,043	22,882,445	--------	135,574	23,018,019
3	Steam department	--------	296,222	296,222	--------	--------	296,222
4	Common utility department	717,683	2,951,944	3,669,627	$1,137,526	--------	4,807,153
5	Subtotal	$1,576,772	$95,849,418	$97,426,190	$1,137,526	$733,405	$99,297,121
6	Construction in progress—electric	--------	$2,125,732	$2,125,732	--------	--------	$2,125,732
7	Construction in progress—gas	--------	40,374	40,374	--------	--------	40,374
8	Construction in progress—common	--------	14,198	14,198	$5,099	--------	19,297
9	Subtotal	$1,576,772	$98,029,722	$99,606,494	$1,142,625	$733,405	$101,482,524
10	Materials and supplies	--------	$1,290,195	$1,290,195	--------	--------	$1,290,195
11	Grand total	**$1,576,772**	**$99,319,917**	**$100,896,689**	**$1,142,625**	**$733,405**	**$102,772,719**

NOTE: [a] This column includes property assessed by the State but separately listed by the company in its report to the Valuation Division.

SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT IV

COMPUTATION OF EARNINGS EVIDENCE

1951

	Items	*1950* (1)	*1949* (2)	*1948* (3)	*1947* (4)	*1946* (5)	*5-Year Average* (6)	(7)
1	Operating income							
2	Net income	$4,244,460	$3,407,182	$3,080,427	$3,057,844	$3,437,536	--------	
3	Depreciation	2,792,549	2,487,453	2,163,123	1,985,635	1,861,245	--------	
4	Net before depreciation	**$7,037,009**	**$5,894,635**	**$5,243,550**	**$5,043,479**	**$5,298,781**	**$5,703,491**	
5	Expectancy: 19 years							
6	Capitalization rates							
7	(1) 5.000% + 3.274% annuity = 8.274%.							
8	(2) 5.500% + 3.115% annuity = 8.615%.							
9	Value computation							
10	Period	*1-Year Basis, 1950*				*5-Year Average Basis*		
11	Capitalization rate	8.274%		8.615%		8.274%		8.615%
12	Net income before depreciation	$7,037,009		$7,037,009		$5,703,491		$5,703,491
13	Capitalized income	$85,049,662		$81,683,215		$68,932,693		$66,204,190
14	Adjustments							
15	Working capital (—)	$1,053,505		$1,053,505		$1,009,689		$1,009,689
16	Land reversions (+)	584,100		533,950		584,100		533,950
17	California earning value including motor vehicles (100% Calif.)	$84,580,257		$81,163,660		$68,507,104		$65,728,451
18	California earning value excluding motor vehicles (apply 96.6%)	**$81,704,528**		**$78,404,096**		**$66,177,862**		**$63,493,684**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT V

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE

(Income Statement)

1951

	Items	*Amounts*		
		(1)	*(2)*	*(3)*
1	Electric department	$16,220,166		
2	Gas department	8,446,796		
3	Steam department	86,423		
4	Total operating revenues		$24,753,385	
5	Operation, including electricity and gas produced	$10,725,415		
6	Maintenance and repairs	1,916,652		
7	Depreciation and amortization	2,792,548		
8	Total operating expenses		15,434,615	
9	Net operating revenues			$9,318,770
10	Provision for federal income tax	$2,138,000		
11	Other taxes	2,936,310		
12	Total operating taxes			5,074,310
13	Net operating income			**$4,244,460**

SOURCE: San Diego Gas and Electric Company—Annual Report to Stockholders, 1950.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT VI

COMPUTATION OF STOCK AND DEBT EVIDENCE

1951

	Items	*Amounts*			
		(1)	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on sales				
3	Capital stock		$48,268,605		
4	Bonds		27,714,172	$75,982,777	
5	Value based on books				
6	Miscellaneous long term debt		$3,200,000		
7	Current and accrued liabilities		6,548,793		
8	Customers' advances for construction		243,741		
9	Other deferred credits		39,424		
10	Injuries and damages reserve		10,000	10,041,958	
11	Total debts				$86,024,735
12	Assets subtracted from debts				
13	Value based on books				
14	Current assets				
15	Total	$5,915,420			
16	Less: Materials and supplies	1,290,195	$4,625,225		
17	Other deferred debits		7,383		
18	Total assets subtracted from debts				$4,632,608
19	California stock and debt value including motor vehicles				**$81,392,127**
20	California stock and debt value excluding motor vehicles (apply 96.6%)				**$78,624,795**
21	5-year average stock and debt value:				
22	1946	$50,680,398			
23	1947	48,692,295			
24	1948	61,577,382			
25	1949	71,392,472			
26	1950	81,392,127			
27	Total	**$313,734,674**			
28	5-year average	**$62,746,935**			
29	5-year average excluding motor vehicles (apply 96.6%)	**$60,613,539**			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT VII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Value Based on Sales)

1951

	Issues	*Number of Shares Outstanding* (1)	*Par Value of Issue* (2)	*Average of Monthly High and Low Prices* (3)	*Computed Value* (4)
1	Common stock	2,400,000	--------	$13.6500	$32,760,000
2	Preferred stock—5% cum.	375,000	--------	23.8646	8,949,225
3	Preferred stock—4½% cum.	300,000	--------	21.8646	6,559,380
4	Total to here				$48,268,605
5	First mortgage "C" bonds—3—78	--------	$10,000,000	104.8750	$10,487,500
6	First mortgage bonds—3⅜—70	--------	16,000,000	107.6667	17,226,672
7	Total				**$75,892,777**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT VIII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Monthly High and Low Security Prices)

1951

			Common Stock (1)	*4½% Preferred Stock* (2)	*5% Preferred Stock* (3)	*3⅜% Bonds 1970 Bid* (4)	*3% Bonds 1978 Bid* (5)	*Common Stock Bid* (6)	*5% Preferred Stock Bid* (7)	*4½% Preferred Stock Bid* (8)
1	January	Low	------	$21.250	$23.000	$106.500	$105.000	$13.750	$23.500	$21.375
2		High	------	21.500	23.625					
3	February	Low	------	21.750	24.125	109.250	105.000	13.500	24.000	21.750
4		High	------	22.000	24.125					
5	March	Low	$13.750	21.750	24.000	108.000	105.250	13.500	24.000	21.750
6		High	13.750	22.125	25.000					
7	April	Low	14.000	21.250	23.500	108.250	105.750	13.875	23.500	21.250
8		High	14.500	21.375	24.000					
9	May	Low	14.000	21.500	23.750	107.500	105.000	14.000	24.000	22.125
10		High	14.375	22.125	24.250					
11	June	Low	13.875	22.000	23.750	107.500	105.000	13.625	23.750	21.500
12		High	14.500	22.250	24.250					
13	July	Low	12.750	21.250	23.500	108.000	105.000	13.250	23.250	22.000
14		High	13.875	22.000	23.500					
15	August	Low	13.000	22.250	23.500	108.000	105.500	13.625	23.250	22.250
16		High	14.000	22.500	23.750					
17	September	Low	13.500	22.250	23.500	108.500	104.500	13.625	23.500	22.000
18		High	13.750	22.250	24.000					
19	October	Low	13.375	21.750	23.750	108.000	104.000	13.250	24.000	21.500
20		High	13.625	22.250	24.750					
21	November	Low	12.750	21.875	24.000	106.000	103.750	13.125	23.750	21.875
22		High	13.250	22.000	24.250					
23	December	Low	13.000	21.750	23.250	106.500	104.750	13.250	23.500	21.500
24		High	13.375	21.750	23.625					
25	Totals		$273.000	$524.750	$572.750	$1,292.000	$1,258.500	$162.375	$284.000	$260.875
26	Average prices of monthly high and low prices		$13.6500	$21.8646	$23.8646	$107.6667	$104.8750	$13.5313	$23.6667	$21.7396

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT IX

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1951

		(1)	*(2)*
1	**ASSETS**		
2	Plant and other investments		
3	Property, plant and equipment	$101,482,525	
4	Other investments	675	
5	Total plant and other investments		$101,483,200
6	Current assets		
7	Cash	$1,639,214	
8	Special deposits	274,995	
9	Working funds	28,035	
10	Accounts receivable	2,299,854	
11	Materials and supplies	1,290,195	
12	Total current assets		$5,532,293
13	Prepayments and deferred charges		
14	Prepayments	$383,127	
15	Unamortized debt discount and expense	61,360	
16	Retirement work in progress	38,486	
17	Other deferred debits	36,916	
18	Total prepayments and deferred charges		$519,889
19	Total assets		**$107,535,382**[a]

		(1)	*(2)*
1	**LIABILITIES**		
2	Capital stock		$41,617,813
3	Bonds and notes		29,200,000
4	Current and accrued liabilities		
5	Accounts payable	$1,172,497	
6	Dividends declared	641,250	
7	Customers' deposits	279,087	
8	Taxes accrued	3,645,032	
9	Interest accrued	383,220	
10	Other current and accrued liabilities	427,706	
11	Total current and accrued liabilities		6,548,793
12	Deferred credits		
13	Unamortized premium on debt	$31,387	
14	Customers' advances for construction	304,676	
15	Other deferred credits	78,847	
16	Total deferred credits		414,911
17	Reserves		
18	Depreciation of electric plant	$14,681,758	
19	Amortization of limited-term electric investments	4,890	
20	Depreciation and amortization—other property	9,331,821	
21	Uncollectible accounts	201,270	
22	Insurance	155,018	
23	Injuries and damages	10,000	
24	Total reserves		24,384,757
25	Contributions in aid of construction		792,820
26	Earned surplus		4,576,287
27	Total liabilities		**$107,535,382**[a]

NOTE: [a] Due to rounding, figures do not add to totals.
SOURCE: San Diego Gas and Electric Company—Annual Report to Stockholders, 1950.

To Exhibit I	*From*
Line 1	Exhibit II, line 10, column 5
Line 2	Exhibit II, line 10, column 6
Line 3, column 1	Exhibit IV, line 18, column 1
Line 3, column 2	Exhibit IV, line 18, column 5
Line 3, column 3	Exhibit IV, line 18, column 3
Line 3, column 4	Exhibit IV, line 18, column 7
Line 4, columns 1 and 3	Exhibit VI, line 20, column 4
Line 4, columns 2 and 4	Exhibit VI, line 29, column 1

All other figures on Exhibit I are computed figures. The unit value of the operative property of the San Diego Gas and Electric Company (excluding money and leased property) for 1951 is shown in line 12, column 1 as $77,000,000. This represents an increase of approximately 12 percent over the previous year.

The highest figure shown on this weighting sheet is once again that for reproduction cost new less depreciation (line 2), while the lowest is that for stock and debt computed on the five-year-average basis (line 4, column 4). The difference betwen these two figures is $51,478,544, with the smaller of the two being only 54.075 percent of the larger. Among the weighted figures, the highest is $89,200,900 (line 8, column 1) and the lowest is $68,009,100 (line 9, column 4). Here the absolute difference is $21,191,800, and the smaller is 76.243 percent of the larger. The simple average of the eight unweighted basic figures is $77,305,237 *or just 0.3964 percent higher than the unit value actually selected by the techniques of weighting and subjective analysis.* The average of all of the weighted figures (shown in line 10, column 5) and the average of all of the unweighted figures (shown in line 5, column 5) are, of course, higher than the simple average of the basic evidences of value, because, in each of the former cases, the relatively high figures for reproduction cost new less depreciation and historical cost new less depreciation are counted four times each. A comparison of the simple average of the eight basic evidences of value and the unit value actually chosen does, however, show that the unit value which *would* have been found if the simpler technique had been adopted is almost identical to that *actually* found by the complicated formula and the unknown elements of subjective consideration.

To	*From*
Exhibit II	
Line 2, column 1	Exhibit III, line 5, column 1.
Line 3, column 1	Exhibit III, $44,224 of line 11, column 5. See explanation below.
Line 4 plus line 5 plus line 6 of column 1	Exhibit III, line 5, column 2 plus $684,082 of line 11, column 5. See explanation below.
Line 8, column 1	Exhibit III, line 6, plus line 7 plus line 8, column 2 plus $5,099. See explanation below.
Line 9, column 1	Exhibit III, line 10, column 2.
Line 10, column 1	Exhibit III, line 11, column 3 plus line 11, column 5.
Column 2	Computed from cost index evidence and by physical appraisals — see Appendix B.
Column 4	Computed from "Life Expectancy" exhibits and by physical appraisals—see Appendix B.

All other figures on Exhibit II are computed figures.

The amount shown for intangible plant (line 3, column 1) consists of various amounts charged to organization, franchises and consents and to miscellaneous intangible plant as prescribed by the "Uniform System of Accounts." These are shown on the summary control (Exhibit III) as part of column 5, "Other."

Exhibit II contains one rather strange feature which might be further explained at this point. The summary control (summarized as Exhibit III) shows licensed motor vehicles charged to construction work in progress at $5,099 (line 8, column 4). Since this is a nontaxable item, it should not appear on Exhibit II in the calculation of the figure in line 10, column 1 for "Total Owned, State Assessed." The amount shown for construction work in progress on Exhibit II (line 8, column 1) does, however, include this figure for licensed motor vehicles. Clearly it should *not*. The error is corrected (in part) by subtracting the $5,099 from the "Plant and Equipment" category (lines 4 to 6, inclusive, column 1 of Exhibit II) so that the latter is $5,099 smaller than it should be.

One other difference is to be noted. For all of the companies so far described, column 5 of Exhibit III represents various items of nontaxable property. In the case of the San Diego Gas and Electric Company, however, this is not true. The items shown in the full statement of the summary control show column 5 to consist of the various items of intangible capital mentioned above and Land Rights, all of which are fully taxable. These are included as part of "Plant and Equipment" on Exhibit II, so that it is necessary to add columns 3 and 5 of Exhibit III to obtain a figure for "Total Owned, State Assessed" which is the same as that which appears on Exhibit II. The $5,099 figure mentioned above does not enter into this total, of course. It is included in the construction work in progress on Exhibit II but is excluded from the "Plant and Equipment" figures. No reasons are offered for these curious techniques.

It is true that the treatment accorded the licensed motor vehicles which are charged to construction work in progress makes no difference to the total historical costs of the property assessed by the Valuation Division. But the treatment clearly does make a difference in the computation of the other cost evidences. It can be seen from Exhibit II that the ratio (column 2) applied to the "Other" property shown in line 6 column 1 is 177, while the ratio applied to construction work in progress (line 8, column 1) is only 100. This means that the reproduction cost new (column 3) is somewhat understated. The opposite is true in the computation of historical cost new, for here the differences in the condition percent figures are in the opposite direction. The differences which are created by this treatment are certainly of an insignificant magnitude, but the calculation is obviously in error, nonetheless.

To	*From*
Exhibit IV	
Line 2, column 1	Exhibit V, line 13, column 3
Line 3, column 1	Exhibit V, line 7, column 1
Line 5	Computed from "life expectancy" exhibits and by physical appraisals
Lines 7 and 8	Two "basic" rates are assumed—the annuity factor is computed from the "basic" rates
Line 15, columns 1 and 3	Exhibit V (line 8, column 2, minus line 7, column 1) divided by 12
Line 16, columns 1 and 5	Exhibit II, line 2, column 3 at 0.396
Line 16, columns 3 and 7	Exhibit II, line 2, column 3 at 0.362
Line 18 (allocation percentage)	Exhibit III (line 11, column 3, plus line 11, column 5) divided by line 11, column 6. See explanation below—computational error

It is interesting to note that, in the valuation of the San Diego Gas and Electric Company for 1951, the Valuation Division *did* compute a land reversion adjustment (line 16, Exhibit IV). This was *not* done for the other companies in this year, but was delayed until the 1952 valuation. The techniques of computation for this company are the same in 1951 as for the other companies in 1952. They consist of determining the present value of the reproduction cost new of the company's land for the 19-year life expectancy of the rest of the company's property by applying the two rates of 5% and 5½%. The land in question is given a reproduction cost new of $1,475,000. This is multiplied by 0.396 and by 0.362 to show the present value over 19 years at 5% and 5½% respectively.

The allocation percentage is computed in the usual manner. It is the purpose of this calculation to remove from the capitalized income figure the "value" of the nontaxable property. This is done simply by dividing the historical cost new of the total taxable property by the historical cost new of the total physical property. Both of these amounts are shown on Exhibit III. From this the computation becomes $101,630,094 divided by $102,772,719. This should give an allocation factor of 98.89 percent. The 96.66 percent reported by the Valuation Division is the result of a simple mechanical error by the division. If the correct allocation percentage had been applied, the final earnings evidence for the single year, with earnings capitalized at 5%, would have been $83,565,294 instead of $81,704,528 (line 18, Column 1 of Exhibit IV).

To Exhibit VI	*From*
Line 3, column 2	Exhibit VII, line 4, column 4
Line 4, column 3	Exhibit VII, line 7, column 4
Line 6, column 2	Exhibit IX, line 3, column 2 (Liabilities) $3,200,000 taken at book value. See explanation below.
Line 7, column 2	Exhibit IX, line 11, column 2 (Liabilities)
Line 8, column 2	Exhibit IX, line 14, column 1 (Liabilities) taken at 80 percent
Line 9, column 2	Exhibit IX, line 15, column 1 (Liabilities) taken at 50 percent
Line 10, column 2	Exhibit IX, line 23, column 1 (Liabilities)
Line 15, column 1	Exhibit IX, line 12, column 2 plus line 14, column 1 (Assets)
Line 16, column 1	Exhibit IX, line 11, column 1 (Assets)
Line 17, column 2	Exhibit IX, line 17, column 1 (Assets) taken at 22%
Line 20 (allocation percentage)	See explanation above relating to earnings evidence.
Line 26, column 1	Exhibit VI, line 19, column 4

As usual, much of the data which lie behind the computations of Exhibit VI come from the balance sheet published as part of the annual Report of the Company to its stockholders. The figure for Miscellaneous Long Term Debt (line 6, column 2), for example, comes from this report. Exhibit IX summarizes this balance sheet, and all of the long term debt items are lumped together as ''Bonds and Notes'' in line 3 (Liabilities). In the actual balance sheet, however, this amount is further broken down into two classes of bonds and one item labeled ''Notes Payable to Banks.'' This latter item is shown as $3,200,000 in the full balance sheet and this amount is transferred directly to Exhibit VI as ''Miscellaneous Long Term Debt.'' All of the other long term debt items of the balance sheet are, of course, included in line 4, column 2 of Exhibit VI as ''market value'' items.

No other items on Exhibit VI need be discussed in detail, since these closely resemble similar items in those companies already discussed. It is necessary merely to repeat that the allocation percentage shown on lines 20 and 29 are subject to the same correction mentioned above in connection with the earnings evidence.

To Exhibit VII	*From*
Line 1, column 3	Exhibit VIII, line 26, column 1
Line 2, column 3	Exhibit VIII, line 26, column 3
Line 3, column 3	Exhibit VIII, line 26, column 2
Line 5, column 3	Exhibit VIII, line 26, column 5
Line 6, column 3	Exhibit VIII, line 26, column 4

Exhibits VII and VIII show the computation of the ''market value'' evidence included in Exhibit VI. The number of shares outstanding of the stock issues—and the par value of the bond issues (column 1 and 2 respectively of Exhibit VII) come from the full balance sheet reported here as Exhibit IX and originally from the Annual Report of the Company to its stockholders.

THE SAN DIEGO GAS AND ELECTRIC COMPANY—1952

The changes made in the valuation of the San Diego Gas and Electric Company in 1952 are similar to the changes made in the valuation of the other companies in the same year. These are described in Exhibits X to XVIII, inclusive, and in the textual explanation below.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT X

COMPUTATION OF "SYSTEM" VALUE

1952

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 6% Before Depreciation*		*Earnings Capitalized at 6% Before Depreciation and Income Tax*		*Horizontal Averages (unweighted)*
		1-Year Basis (1)	*5-Year Average Basis (2)*	*1-Year Basis (3)*	*5-Year Average Basis (4)*	*(5)*
1	(H) Historical cost new less depreciation	$86,213,143	$86,213,143	$86,213,143	$86,213,143	--------
2	(R) Reproduction cost new less depreciation	127,490,489	127,490,489	127,490,489	127,490,489	--------
3	(E) Capitalized earnings	84,267,692	68,537,568	96,884,900	71,310,565	--------
4	(S) Stock and debt	85,270,421	69,075,698	85,270,421	69,075,698	--------
5	Unweighted average	$95,810,400	$87,829,200	$98,964,700	$88,522,500	$92,781,700
6	Weighted average: H = 40%; R = 5%; E = 40%; S = 15%	$87,357,500	$74,325,500	$92,404,400	$75,434,700	$82,380,525
7	Weighted average: H= 35%; R = 5%; E = 40%; S = 20%	87,310,300	77,779,200	92,357,200	78,888,400	84,083,775
8	Weighted average: H = 33%; R = 1%; E = 33%; S = 33%	85,672,700	75,137,600	89,836,400	76,052,700	81,674,850
9	Weighted average: H = 19%; R = 1%; E = 40%; S = 40%	85,470,700	72,700,700	90,517,600	73,809,900	80,624,725
10	Weighted average: H = 5%; R = 5%; E = 45%; S = 45%	86,977,400	72,611,200	92,655,100	73,859,100	81,525,700
11	Vertical averages	$88,099,800	$76,730,600	$92,789,200	$77,761,200	**$83,845,213**
12	System value for 1951	**$76,947,190**				
13	System value for 1952	**$83,000,000**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XI

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION

1952

	Type of Property	*Historical Cost New* (1)	*Ratio* (2)	*Reproduction Cost New* (3)	*Condition (Percentage)* (4)	*Historical Cost New Less Depreciation* (5)	*Reproduction Cost New Less Depreciation* (6)
1	Plant and equipment						
2	Land	$1,630,877	---	$1,655,000	100	$1,630,877	$1,655,000
3	Land rights	758,664	---	--------	100	758,664	--------
4	Intangible plant [a]	16,736	1.70	28,451	90	15,062	25,606
5	Additions and betterments, 1949, gross	10,316,537	1.12	11,554,521	95	9,800,710	10,976,795
6	Additions and betterments, 1950, gross	14,353,430	1.09	15,645,239	97	13,922,827	15,175,882
7	Additions and betterments, 1951, gross	9,366,237	1.00	9,366,237	99	9,272,575	9,272,575
8	Other	69,927,909	1.93	134,960,864	65–63	45,453,141	85,025,344
9	Total plant and equipment	$106,370,390		$173,210,312		$80,853,856	$122,131,202
10	Construction work in progress	$3,609,418	1.00	$3,609,418	100	$3,609,418	$3,609,418
11	Materials and supplies	1,944,299	1.00	1,944,299	90	1,749,869	1,749,869
12	Total owned, state-assessed	**$111,924,107**		**$178,764,029**		**$86,213,143**	**$127,490,489**

NOTE: [a] **All organization was written off during 1951.**
SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XII

DETAIL OF THE COMPUTATION OF COST EVIDENCE

(Summary Control)

1952

	Property Items by Department	*Assessed by State* *Land* (1)	*Assessed by State* *Other* (2)	*Assessed by State* *Total* (3)	*Licensed Motor Vehicles* (4)	*Other* [a] (5)	*Total Within Exterior Bounds of California* (6)
1	Electric department	$715,776	$75,539,121	$76,254,897	--------	$648,296	$76,903,193
2	Gas department	197,422	25,039,196	25,236,618	--------	127,104	25,363,722
3	Steam department	--------	299,265	299,265	--------	--------	299,265
4	Common department	717,679	3,090,344	3,808,023	$1,260,945	--------	5,068,968
5	Subtotal	1,630,877	103,967,926	105,598,803	1,260,945	775,400	107,635,148
6	Construction work in progress—electrical	--------	3,498,302	3,498,302	--------	--------	3,498,302
7	Construction work in progress—gas	--------	45,367	45,367	--------	--------	45.367
8	Construction work in progress—stem	--------	8,943	8,943	--------	--------	8.943
9	Construction work in progress—common	--------	52,992	52,992	3,814	--------	56.806
10	Subtotal	$1,630,877	$107,573,530	$109,204,407	$1,264,759	$775,400	$111,244,566
11	Materials and supplies	--------	1,944,299	1,944.299	--------	--------	1,944.299
12	Grand total	**$1,630,877**	**$109,517,829**	**$111,148,706**	**$1,264,759**	**$775,400**	**$113,188,865**

NOTE: [a] **This column includes property assessed by the State but separately listed by the company in its report to the Valuation Division.**
SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1952.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XIII

COMPUTATION OF EARNINGS EVIDENCE

1952

	Items	*1951* *(1)*	*1950* *(2)*	*1949* *(3)*	*1948* *(4)*	*1947* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$4,478,349	$4,244,460	$3,407,182	$3,080,427	$3,057,844	--------	
3	Depreciation	3,122,843	2,792,549	2,487,453	2,163,123	1,985,635	--------	
4	Net before depreciation	$7,601,192	$7,037,009	$5,894,635	$5,243,550	$5,043,479	$6,163,973	
5	Federal income tax	$3,291,000	$2,138,000	$1,313,000	$1,091,000	$1,420,000	--------	
6	State income tax	272,445	215,000	148,100	106,700	137,750	--------	
7	Net before depreciation and income tax	**$11,164,637**	**$9,390,009**	**$7,355,735**	**$6,441,250**	**$6,601,229**	**$8,190,572**	
8	Expectancy: 19 years							
9	Capitalization rates							
10	(1) 6.000% interest + 2.962% depreciation = 8.962%.							
11	(2) 8.962% annuity + 2.480% taxes = 11.442%.							

		1-Year Basis, 1951		*5-Year Average*	
12	Value computation				
13	Period				
14	Capitalization rate	*Before depreciation* 8.962%	*Before depreciation and income taxes* 11.442%	*Before depreciation* 8.962%	*Before depreciation and income taxes* 11.442%
15	Net income	$7,601,192	$11,164,637	$6,163,973	$8,190,572
16	Capitalized income	$84,815,800	$97,575,922	$68,778,989	$71,583,395
17	Adjustments				
18	Working capital (—)	$1,229,476	$1,229,476	$1,100,961	$1,100,961
19	Construction work in progress (+)	1,037,408	1,037,408	1,037,408	1,037,408
20	Land reversion (+)	598,448	598,448	598,448	598,448
21	California earning value including motor vehicles	$85,222,180	$97,982,302	$69,313,884	$72,118,290
22	California earning value excluding motor vehicles (apply 98.88%)	**$84,267,692**	**$96,884,900**	**$68,537,568**	**$71,310,565**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XIV

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE

(Income Statement)

1952

		Amounts		
	Divisions	*(1)*	*(2)*	*(3)*
1	Electric department	$18,868,757		
2	Gas department	9,856,858		
3	Steam department	103,382		
4	Total operating revenues		$28,828,997	
5	Operation, including electricity and gas purchased	$13,040,121		
6	Maintenance and repairs	1,713,585		
7	Depreciation and amortization	3,123,206		
8	Total operating expenses		17,876,912	
9	Net operating revenues			$10,952,085
11	Provision for federal income tax	$3,291,000		
12	Other taxes	3,182,735		
13	Total operating taxes			6,473,735
14	Net operating income			**$4,478,350**

SOURCE: San Diego Gas and Electric Company—46th Annual Report to Stockholders, 1951.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XV

COMPUTATION OF STOCK AND DEBT EVIDENCE

1952

		Amounts			
	Items	*(1)*	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on sales				
3	Capital stock		$53,135,877		
4	Bonds		26,654,998		
				$79,790,875	
5	Value based on books				
6	Miscellanous long term debt		$2,400,000		
7	Current and accrued liabilities		8,496,688		
8	Customers' advances for construction		298,092		
9	Other deferred credits		33,400		
10	Injuries and damages reserve		2,000		
				11,230,180	
11	Total debts				$91,021,055
12	Assets subtracted from debts				
13	Value based on sales				
14	Investments		$675		
15	Value based on books				
16	Current assets:				
17	Total	$6,711,792			
18	Less: Materials and supplies	1,944,299			
			4,767,493		
19	Other deferred debits		16,620		
20	Total assets subtracted from debts				$4,784,788
21	California stock and debt value including motor vehicles				**$86,236,267**
22	California stock and debt value, excluding motor vehicles (apply 98.88%)				**$85,270,421**
23	5-year average stock and debt value:				
24	1947	$48,692,295			
25	1948	61,577,382			
26	1949	71,392,472			
27	1950	81,392,127			
28	1951	86,236,267			
29	Total	$349,290,543			
30	5-year average	**$69,858,109**			
31	5-year average excluding motor vehicles (apply 98.88%)	**$69,075,698**			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XVI

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Value Based on Sales)

1952

	Issues	*Number of Shares Outstanding* (1)	*Par Value of Issue* (2)	*Average of Monthly Bid Prices* (3)	*Computed Value* (4)
1	Common stock	2,400,000	--------	$13.3854	$32,124,960
2	Preferred stock—5% cum.	375,000	--------	22.3021	8,363,287
3	Preferred stock—4½% cum.	300,000	--------	20.4583	6,137,490
4	Preferred stock—4.4% cum.	325,000	--------	20.0312	6,510,140
5	Subtotal				$53,135,877
6	First mortgage bonds "C"—3—78	--------	$10,000,000	99.9167	$9,991,670
7	First mortgage bonds—3⅜—70	--------	16,000,000	104.1458	16,663,328
8	Total				**$79,790,875**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XVII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Monthly High and Low Security Prices)

1952

		Common Stock Bid (1)	*5% Preferred Stock Bid* (2)	*4½% Preferred Stock Bid* (3)	*4.40% Preferred Stock Bid* (4)	*3⅜% Bonds 1970 Bid* (5)	*3% Bonds 1978 Bid* (6)
1	January	$13.625	$23.500	$21.250	$21.125	$107.000	$104.000
2	February	13.875	23.750	21.500	21.250	106.500	103.500
3	March	13.750	23.000	21.250	20.000	108.500	105.000
4	April	13.250	22.000	20.375	20.000	105.000	99.500
5	May	13.125	22.750	21.750	20.250	104.750	98.500
6	June	13.000	22.125	20.000	19.750	102.000	98.000
7	July	13.250	21.875	20.250	20.250	102.500	99.000
8	August	13.375	22.250	21.000	20.500	103.500	100.000
9	September	13.250	22.375	20.375	20.000	103.000	100.000
10	October	13.125	22.250	19.500	19.250	103.000	97.500
11	November	13.250	21.000	19.250	19.000	102.000	97.000
12	December	13.750	20.750	19.000	19.000	102.000	97.000
13	Totals	$160.625	$267.625	$245.500	$240.375	$1,249.750	$1,199.000
14	Average prices of monthly bid prices	$13.3854	$22.3021	$20.4583	$20.0312	$104.1458	$99.9167

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO GAS AND ELECTRIC COMPANY—EXHIBIT XVIII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1952

		(1)	*(2)*	*(3)*
1	**ASSETS**			
2	Utility plant			
3	Property, plant and equipment		$111,227,830	
4	Intangibles		16,736	
5	Total utility plant			$111,244,566
6	Current assets			
7	Cash on hand and demand deposits		$1,712,756	
8	Cash on deposit with trustee for payment of bond interest		269,922	
9	Accounts receivable			
10	Customers'	$2,745,677		
	Less: Reserve [a]	194,143		
			2,551,534	
12	Other accounts receivable		12,963	
13	Materials and supplies		1,944,299	
14	Total current assets			6,491,474
15	Prepayments and deferred charges			
16	Prepayments		$220,319	
17	Unamortized debt expense, less premium [b]		27,982	
18	Other deferred charges		95,414	
19	Total prepayments and deferred charges			343,715
20	Total assets			**$118,079,755**

		(1)	*(2)*
1	**LIABILITIES**		
2	Capital stock		$48,221,369
3	Bonds and notes		28,400,000
4	Current and accrued liabilities		
5	Accounts payable	$1,515,299	
6	Dividends payable	712,750	
7	Customers' deposits	294,286	
8	Accrued salaries and wages	333,387	
9	Accrued taxes	4,928,168	
10	Accrued bond interest	369,922	
11	Other current liabilities	342,876	
12	Total current and accrued liabilities		8,496,688
13	Deferred credits		
14	Customers' advances for construction	350,695	
15	Other deferred credits	57,191	
16	Total deferred credits		407,886
17	Reserves		
18	Depreciation	$26,180,988	
19	Other reserves	182,004	
20	Total reserves		26,362,992
21	Contributions in aid of construction		818,935
22	Earned surplus		5,371,885
23	Total liabilities		**$118,079,755**

NOTES [a] On 1950 Balance Sheet, this reserve carried as a liability instead of a deduction from the asset.

[b] On 1950 Balance Sheet, the premium ($31,387) was carried as a liability instead of a deduction from this asset.

SOURCE: San Diego Gas and Electric Company—Annual Report to Stockholders, 1951.

To	*From*
Exhibit X	
Line 1	Exhibit XI, line 12, column 5
Line 2	Exhibit XI, line 12, column 6
Line 3, column 1	Exhibit XIII, line 22, column 1
Line 3, column 2	Exhibit XIII, line 22, column 5
Line 3, column 3	Exhibit XIII, line 22, column 3
Line 3, column 4	Exhibit XIII, line 22, column 7
Line 4, columns 1 and 3	Exhibit XV, line 22, column 4
Line 4, columns 2 and 4	Exhibit XV, line 31, column 1

The unit value of the operative property (excluding money and leased property) of the San Diego Gas and Electric Company for the 1952 valuation is shown to be $83,000,000 (line 13, column 1 of Exhibit X). On this weighting sheet the highest figure shown is that for reproduction cost new less depreciation (line 2) and the lowest is that for earnings capitalized at 6 percent before depreciation and after taxes on the five-year-average basis (line 3, column 2). The smaller of these two figures is only 53.759 percent of the larger and the absolute difference between them is $58,952,921. The highest weighted figure is $92,655,100 (line 10, column 3) and the lowest weighted figure is $72,611,200 (line 10, column 2). The absolute difference between these two figures is $20,043,900 and the smaller is 78.36 percent of the larger. The simple average of the eight basic evidences of value is $86,131,309.

To	*From*
Exhibit XI	
Line 2, column 1	Exhibit XII, line 5, column 1
Line 3 plus line 4, column 1	Exhibit XII, line 12, column 5
Line 5 plus line 6, plus line 7, plus line 8	Exhibit XII, line 5, column 2 minus line 9, column 4. See explanation below.
Line 10, column 1	Exhibit XII, line 6 plus line 7 plus line 8, plus line 9, column 2 plus line 9, column 4. See explanation below.
Line 11, column 1	Exhibit XII, line 11, column 2
Line 12, column 1	Exhibit XII, line 12, column 6 minus line 12, column 4
Column 2	Computed from cost index evidence and by physical appraisals—See Appendix B
Column 4	Computed from "life expectancy" tables and by physical appraisals—See Appendix B

The same unusual relationship between the Summary Control (Exhibit XII) and the "cost sheet" (Exhibit XI) is to be noted in the 1952 valuation as was noted in the 1951 valuation. This is shown by the fact that the $3,814 for licensed motor vehicles charged to construction work in progress (line 9, column 4, of Exhibit XII) is included with the construction work in progress figure on Exhibit XI (line 10, column 1) and are subtracted from the "Plant and Equipment" figures of lines 5 to 8, inclusive, column 1. Once again, there is no suitable explanation for this treatment.

It will also be noted that in the 1952 valuation there is a separation of "land" and "land rights," although, in view of the fact that the ratio and the condition percent are the same as applied to each of these items, this distinction is without significance.

The decision of the Valuation Division to consider only operative property in the 1952 valuation has no bearing on the valuation of the San Diego Gas and Electric Company, since the summary control for this company shows no items which might be considered to be nonoperative property. This, of course, was true for 1951 as well.

To	*From*
Exhibit XIII	
Line 2, column 1	Exhibit XIV, line 14, column 3
Line 3, column 1	Exhibit XIV, line 7, column 1. See explanation below.
Line 5, column 1	Exhibit XIV, line 11, column 1
Line 6, column 1	Financial Report of the Company to the Valuation Division
Line 8	Computed from "life expectancy" exhibits and by physical appraisals—See Appendix B
Lines 10 and 11	The "basic" interest rate is assumed, the annuity factor is computed from the "basic" interest rate, and the tax factor is computed from the tables shown in Appendix C
Line 19, column 1	Exhibit XI: (line 10, column 1 minus 2% of line 9, column 1) taken at 70%. See explanation below.
Line 20, column 1	Exhibit XI, line 2, column 3, taken at 0.3616
Line 22 (allocation percentage)	Exhibit XI, line 12, column 1 divided by (Exhibit XII, line 12, column 6)

There are no important differences between the earnings computation for the San Diego Gas and Electric Company and the other companies in the sample for 1952. There are, however, several items which require further explanation. For example, the depreciation shown in line 3, column 1 of Exhibit XIII is not that which appears under this heading in the income statement of the company to the stockholders. Once again, this is the result of a mechanical error by the Valuation Division, for the division failed to include as part of the depreciation figure the amount of $364 for the amortization of intangible plant. In terms of its effects upon the final results, this item might well be excluded. But in terms of the logical consistency with which the valuation processes might be carried on, it clearly should have been included.

The adjustment for construction work in progress (line 19, Exhibit XIII) is designed to account for that portion of construction work in progress which is not reflected in the earnings figures themselves. As indicated above, it is assumed that a certain percentage of the total construction work in progress *is* reflected in the earnings under the further assumption that a certain percentage of construction work in progress is "necessary" for the successful operations of the enterprise. In this case, the technique of computing the "necessary" construction work in progress involves taking 2 percent of the total plant and equipment (Exhibit XI, line 10, column 1). This is then subtracted from the historical cost new of the existing construction work in progress, the difference being considered to be that quantity of construction work which is not absolutely necessary to the earning of the current level of income and which is consequently not reflected in current income. One further adjustment to this figure is necessary, however. This comes from the assumption that some of the construction work has actually been completed and is in operation contributing to current income but has not yet been charged to the various accounts which make up the "Plant and Equipment" category. This is the significance of the 70 percent calculation described above, for it is assumed that 30 percent of the "extra-necessary" construction work in progress *is* accounted for in current earnings in spite of the fact that the physical property does not as yet appear in the "Plant and Equipment" accounts. It can readily be seen that these calculations are almost entirely based upon assumption and little scientific accuracy can be claimed for this adjustment.

To Exhibit XV	*From*
Line 3, column 2	Exhibit XVI, line 5, column 4
Line 4, column 3	Exhibit XVI, line 8, column 4
Line 6, column 2	Exhibit XVIII: $2,400,000 of line 3, column 2 (Liabilities). See explanation below.
Line 7, column 2	Exhibit XVIII, line 12, column 3 (Liabilities)
Line 8, column 2	Exhibit XVIII, line 14, column 2 (Liabilities) taken at 85 percent
Line 9, column 2	Exhibit XVIII, line 15, column 2 (Liabilities) taken at 50 percent. See explanation below.
Line 10, column 2	Report of the Company to the California Public Utilities Commission
Line 14, column 2	Report of the Company to the California Public Utilities Commission
Line 17, column 1	Exhibit XVIII, line 14, column 3 plus line 16, column 2 (Assets)
Line 18, column 1	Exhibit XVIII, line 13, column 2 (Assets)
Line 19, column 2	Exhibit XVIII, line 18, column 2 (Assets) taken at 50%. See explanation below.
Line 22 (allocation percentage)	Exhibit XI, line 12, column 1 divided by (Exhibit XII, line 12, column 6)
Line 28, column 1	Exhibit XV, line 21, column 4

The item in line 6, column 2 of Exhibit XV, showing the amount of the company's miscellaneous long term debt, consisted, as for the previous year, of notes payable to banks. The $2,400,000 is a book figure and no attempt has been made to determine a market value for these notes.

The balance sheet reported by the company in its annual report to the stockholders is somewhat simplified as compared with that for 1951. As a result, the Valuation Division found it necessary to examine the balance sheet accounts prepared by the company for the California Public Utilities Commission for a breakdown of some of the summarized items. Such, for example, was the case for the "Injuries and Damages Reserve" and for the "Other Investments." The former, incidentally, is taken at 20 percent in the 1952 valuation while it was taken at 100 percent in the 1951 valuation. According to the theory adopted by the Valuation Division (as described in the discussion of the Pacific Gas and Electric Company), it is the fractional technique which is correct. The adjustments for Other Deferred Credits and Other Deferred Debits similarly represent adjustments to the figures which appear in the balance sheet submitted to the California Public Utilities Commission. Thus the adjustment for Other Deferred Credits is 50 percent of $66,700 and the adjustment for Other Deferred Debits is 50 percent of $33,240.

To Exhibit XVI	*From*
Line 1, column 3	Exhibit XVII, line 14, column 1
Line 2, column 3	Exhibit XVII, line 14, column 2
Line 3, column 3	Exhibit XVII, line 14, column 3
Line 4, column 3	Exhibit XVII, line 14, column 4
Line 6, column 3	Exhibit XVII, line 14, column 6
Line 7, column 3	Exhibit XVII, line 14, column 5

The figures in columns 1 and 2 of Exhibit XVI are obtained directly from the annual report of the company to its stockholders or from separate reports submitted to the Valuation Division. All other figures on this table are computed figures. The supporting data of Exhibit XVII are somewhat unusual in that they represent the "bid" prices for the various security issues rather than the actual market prices. These securities are not listed on the stock exchange although their prices could, of course, be obtained. Apparently it is the opinion of the Valuation Division that the results of this particular research would not justify the efforts involved. The practice of taking "bid" prices for all securities is, however, somewhat inconsistent, since actual prices were compiled for some of the issues in the 1951 valuation.

It may be said that, in general, the valuation of the San Diego Gas and Electric Company for the two years under examination is quite clear and straightforward, at least insofar as it may be compared to some of the other companies in this sample. It is perhaps because of this fact that the several mechanical errors which have been displayed above stand out so clearly. In fairness, however, it must be pointed out that all of these mechanical errors (with the possible exception of the incorrect calculation of the allocation percentage in the 1951 valuation) involve very small amounts of value and make very little difference to the final unit value for this company. As in all other cases, the differences in value which would arise from differences in basic theoretical approach are reserved for comment in Chapter XIV.

CHAPTER XII

THE VALUATION OF RAILROAD COMPANIES BY THE STATE BOARD OF EQUALIZATION

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—1951

In many respects the valuation of the Atchison, Topeka and Santa Fe Railway Company is the most difficult and complicated of any of those selected for present examination and illustration. To be sure, there is not the same massiveness to the calculations as there was with the Pacific Gas and Electric Company and the Pacific Telephone and Telegraph Company. Nor are there the large gaps in the data which were naturally present in the valuation of the Kern Mutual Telephone Company. But many theoretical and practical problems are involved, some of which can be solved only in the most arbitrary and tentative manner, and some of which can be solved only by a constant reference to the basic principles of enterprise valuation.

The Atchison, Topeka and Santa Fe Railway Company is a good representative of the railway enterprises which are subject to valuation by the State Board of Equalization in California, in the sense that most of the important and unique analytical problems which face the assessing agency in railway valuation are present in the valuation of this company. For example, the need for distinguishing clearly between operating and nonoperating property is typically much more important for railway valuation than for the valuation of other utility enterprises if only for the reason that nonoperating property is relatively more important in the case of the railroads. This is true for the Atchison, Topeka and Santa Fe Railway Company. The problems arising from the interstate location of the physical property of the enterprise are ordinarily much more severe for railroads than for other types of utilities, in part because there is actually a *movement* of some of the physical property from state to state. This too, is true for the Atchison, Topeka and Santa Fe Railway Company. Railroads often show extreme differences between such evidences of value as historical costs and reproduction costs, and even more severe differences between reproduction costs and stock and debt evidences. As will be shown below, this is most certainly the case with the Atchison, Topeka and Santa Fe Railway Company. Railroad earnings are often much more intimately associated with fluctuations in general economic activity than are the earnings of other types of utilities. Once again, the Atchison, Topeka and Santa Fe Railway Company illustrates the general case well. In railroad valuation the problems connected with joint usage of facilities and with leasing arrangements (in which the railway may appear as either the lessee or the lessor) assume considerable importance. The Atchison, Topeka and Santa Fe Railway Company illustrates these valuation difficulties, too. Even the accounting systems and the balance sheets and income statements which appear in the stockholders' reports are often quite different in their specific details for railroads than for gas and electric or the telephone companies. This is abundantly illustrated in the following description of the valuation of the Atchison, Topeka and Santa Fe Railway Company.

All of these create especial difficulties for the valuation expert—and, of course, for those who attempt to report the activities of the valuation expert. In the practices of the Valuation Division the basic theoretical approach is the same for the Atchison, Topeka and Santa Fe Railway Company as for the other companies, but the specific applications, computations and manipulations are often quite different. As a result of these differences and these special difficulties, the method of exposition adopted in the following pages is somewhat different from that applied to the last three companies and much more like that applied to the Pacific Telephone and Telegraph Company. This method involves the presentation of the exhibits one by one (rather than as a group), with each exhibit followed, where necessary, by an explanation of its meaning and its relationship to the other exhibits. In this way it is hoped to bring out the unique characteristics of both the company and the valuation techniques applied to it.

Although Exhibit I for the Atchison, Topeka and Santa Fe Railway Company is similar to the comparable tables for the other companies, it is particularly revealing in the present case. It can be seen, for example, that the highest figure on this exhibit is that for reproduction cost new less depreciation (line 2) at $332,211,517, while the lowest is that for stock and debt evidence computed on the five-year-average basis (line 4, columns 2 and 4) at only $75,894,456. The *absolute difference between these figures is $256,327,061. The smaller of the two is only 22.844 percent of the larger.* For contrast, it may be recalled that similar computations for the Pacific Gas and Electric Company for the same year showed the smallest figure on the weighting sheet to be 52.8171 percent of the largest. If these figures are taken as roughly indicative of the "range of uncertainty" in the determination of a final unit value, it is clear that the range is large even for the Pacific Gas and Electric Company. For the Atchison, Topeka and Santa Fe Railway Company it is extreme.

In the description of the Pacific Gas and Electric Company valuation it was pointed out that the existence of such a large "range of uncertainty" made it particularly important for the valuation agency to approach this data with a clear idea of the relative importance of the various evidences of value. With the

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT I

COMPUTATION OF "SYSTEM" VALUE
(California Only)

1951

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 5%*		*Earnings Capitalized at 5½%*		*Horizontal Averages (unweighted)*
		1-Year Basis *(1)*	*5-Year Average Basis* *(2)*	*1-Year Basis* *(3)*	*5-Year Average Basis* *(4)*	*(5)*
1	(H) Historical cost new less depreciation	$203,190,949	$203,190,949	$203,190,949	$203,190,949	--------
2	(R) Reproduction cost new less depreciation	332,221,517	332,221,517	332,221,517	332,221,517	--------
3	(E) Capitalized earnings	256,687,923	202,823,379	243,512,424	192,250,164	--------
4	(S) Stock and debt	81,325,117	75,894,456	81,325,117	75,894,456	--------
5	Unweighted average	$218,356,400	$203,532,500	$215,062,500	$200,889,200	$209,460,150
6	Weighted average: H = 20%; R = 10%; E = 50%; S = 20%	$218,469,400	$190,451,000	$211,881,600	$185,164,400	$201,491,600
7	Weighted average: H = 10%; R = 10%; E = 40%; S = 40%	188,746,500	165,028,500	183,476,300	160,799,200	174,512,625
8	Weighted average: H = 10%; R = 10%; E = 50%; S = 30%	206,282,800	177,721,300	199,695,000	172,434,700	189,033,450
9	Weighted average: H = 5%; R = 5%; E = 40%; S = 50%	170,108,400	145,847,200	164,838,200	141,617,900	155,602,925
10	Vertical averages	$200,392,700	$176,516,000	$194,990,700	$172,181,100	**$186,020,100**
11	System value for California, 1950	**$130,100,000**				
12	System value for California, 1951	**$138,990,000**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

Atchison, Topeka and Santa Fe Railway Company, as with the Pacific Gas and Electric Company, it might be supposed that the various weighting systems shown on Exhibit I represent an attempt to resolve these difficulties. This supposition is strengthened when it is observed that the "range of uncertainty" is considerably reduced by taking these weighting systems into account. On Exhibit I for the Atchison, Topeka and Santa Fe Railway Company the highest of the weighted figures is $218,469,000 (line 6, column 1), while the lowest is $141,617,900 (line 9, column 4). The absolute difference has now been reduced to $76,851,500, and the ratio of the lower to the higher figure has been increased to 64.823 percent. Although this last figure is still low as compared to the similar figure for the Pacific Gas and Electric Company (84.4048 percent), it is still much higher than the comparable figure for the unweighted evidences of value. It will be clear, however, from a further examination of Exhibit I, that these weighting systems should not be taken too seriously in any interpretation of the techniques of the Valuation Division. *This is indicated by the fact that the unit value finally chosen is lower than any of the weighted figures shown on lines 6 to 9, inclusive.* The final unit value is shown in line 12, column 1 as $138,990,000. This is approximately $3,000,000 lower than the *lowest* of the weighted figures (line 9, column 4) and is more than $50,000,000 lower than the *average* of all the weighted figures (line 10, column 5). Very little assistance is provided by an examination of the simple average of the eight basic evidences of value (one for Reproduction Cost New, one for Historical Cost New, four for earnings, and two for stock and debt). This simple average (not shown in Exhibit I) is $198,488,241—still some $60,000,000 or 42.808 percent higher than the unit value finally chosen.

These computations merely illustrate a point which was made several times in Chapter IX that the weighting systems are used as little more than guides to the judgment of the officials of the Valuation Division and must not be interpreted as the terms of a mathematical formula. This is true for all companies; it is merely illustrated in a particularly dramatic fashion for the Atchison, Topeka and Santa Fe Railway Company.

One further point should be clearly understood. It cannot be said that the unit value of $138,990,000 is *incorrect* merely because it does not appear to have been determined with the use of the weighting systems shown in Exhibit I. If, for example, it could be shown that both reproduction costs and historical costs are incorrectly considered to be evidences of value, they should be given a *zero* weight. If it could then be shown that the earnings and the stock and debt evidence should be given equal weight in the final determination, a unit value of $139,000,000 would appear to be much more reasonable and possibly the "correct" figure (assuming the evidences themselves to have been correctly computed). It is clear that this is *not* the theory which the Valuation Division used for the Atchison, Topeka and Santa Fe Railway Company in this year. But it is equally clear that greater attention *was* paid to stock and debt evidence than is indicated in the reported weighting systems.

It seems strange that this emphasis of stock and debt evidence was not supported by the calculation of a weighting system (even an *ex post* calculation would have been somewhat revealing). But the absence of such a calculation does not provide proof positive that the unit value is incorrect. It proves, merely, that, correct or incorrect, the decision which produced this unit value is an undocumented decision. At the same time, a comparison of the relationships between the various evidences of value and the final unit value for the Atchison, Topeka and Santa Fe Railway Company with similar relationships for the other companies in our sample shows that the stock and debt evidence receives *relatively* more weight in the Atchison, Topeka and Santa Fe Railway Company valuation than in the valuation of the other companies. It would seem that, if reproduction and historical costs are useless as evidences of unit value for the Atchison, Topeka and Santa Fe Railway Company, they are useless evidences of unit value for *any* company. And it would seem that, if stock and debt evidence is to be placed upon a pedestal for the Atchison, Topeka and Santa Fe Railway Company, it should be placed upon an equally high pedestal for all of the companies. This reasoning is deceptively simple, it is true. There *may* be very good reasons for questioning the importance of stock and debt evidence in some companies and the earnings evidence in other companies, and the cost evidences in other companies. But unless it can be shown that such inherent differences for valuation purposes do exist between these companies, there can be no justification for such markedly different procedures. The existence of a wider "range of uncertainty" for the Atchison, Topeka and Santa Fe Railway Company is not a sufficient argument, for, as has already been shown, the final choice of a unit value for this company conforms to no standard except the standard which places relatively heavy emphasis upon stock and debt evidences. Since these decisions are strongly subjective in character, there is no documented answer to the question of why the Valuation Division considers stock and debt evidence to be *relatively* important for the Atchison, Topeka and Santa Fe Railway Company and *relatively* unimportant for the other companies examined in this report. That the question must be answered before equalization of assessments may be said to be either present or absent will be immediately apparent.

Before passing on to the remainder of the valuation process as applied to the Atchison, Topeka and Santa Fe Railway Company, it is necessary to point out that no attempt is here made to claim inaccuracy on the part of the Valuation Division, since a *critical* examination is reserved for Chapter XIV. It may be that the answers for both groups of companies are substantially correct and that there are legitimate reasons to be found in the basic characteristics of the companies for the different methods of arriving at the answers. If any criticism is extracted from the above remarks it should be in terms of the lack of documentation rather than in the positive inaccuracy of the results. Beyond this, the Atchison, Topeka and Santa Fe Railway Company case serves further to reveal the subjective character of the final choice of a unit value from among the various evidences computed. As such, it is a useful addition to a noncritical explanation of these processes.

The relationships between Exhibit I and the other exhibits in the group are the same for the Atchison, Topeka and Santa Fe Railway Company as for the other companies discussed. These relationships are presented in the usual manner below.

To Exhibit I	*From*
Line 1	Exhibit II, line 10, column 5
Line 2	Exhibit II, line 10, column 6
Line 3, column 1	Exhibit IV, line 20, column 1
Line 3, column 2	Exhibit IV, line 20, column 5
Line 3, column 3	Exhibit IV, line 20, column 3
Line 3, column 4	Exhibit IV, line 20, column 7
Line 4, columns 1 and 3	Exhibit VI, line 29, column 4. See explanation below.
Line 4, columns 2 and 4	Exhibit VI, line 44, column 2. See explanation below.

Only two points require further mention here. The first is concerned with the fact that the two cost evidences are taken from line 10 of Exhibit II, and consequently exclude all of the nonoperative property (shown as "Miscellaneous Physical Property" on Exhibit II). This, of course, is contrary to the usual (although not invariable) practice in the 1951 valuations of making no distinction between operative and nonoperative property. For this company, however, the nonoperative property was valued separately and added in after the determination of the unit value. The second point is concerned with the stock and debt evidences and the mechanical errors which were involved in transferring the figures from the computation sheet (Exhibit IV) to the weighting sheet (Exhibit I). The one-year stock and debt figure should have been taken from line 30 of Exhibit VI rather than from line 29, and the five-year average stock and debt figure should have been taken from line 45 rather than from line 44. The significance of these errors lies in the fact that the stock and debt evidences transferred to the weighting sheet contain the value of the licensed motor vehicles when, by law, these are exempt from assessment by the State Board of Equalization for purposes of property taxation. The difference is, of course, very small.

Exhibits II and III show the computation of the two cost evidences which are carried to Exhibit I. As with the other companies, three basic pieces of information are required for this computation. The first of these is the historical cost new of the various items of property. This information is shown in column 1 of Exhibit II and the detail behind it comes from the summary control statement which comprises Exhibit III. The other two pieces of basic information are the cost ratios shown in column 2 of Exhibit II and the condition percent figures shown in column 4 of Exhibit II. Neither of these is explored beyond the figures which appear in Exhibit II, except insofar as the information in Appendix B is illustrative of the general case.

To Exhibit II	*From*
Line 2, column 1	Exhibit III, line 2, column 1
Line 3, column 1	Exhibit III, line 28, column 2
Line 4, column 1	Exhibit III, lines 33 to 36, inclusive, plus line 38 of column 5
Line 5, column 1	Exhibit III, line 37, column 2
Line 6, column 1	Exhibit III, line 46, column 2

To	*From*
Exhibit II—Continued	
Line 7, column 1	Exhibit III, lines 3 to 27, inclusive, of column 2 plus lines 29 to 32, inclusive, of column 2 plus line 1, column 5 plus lines 40 and 41 of column 5
Line 9, column 1	Exhibit III, line 45, column 2
Line 12, column 1	Exhibit III, line 43, column 1
Line 13, column 1	Exhibit III, line 44, column 2
Line 15, column 1	Exhibit III, line 47, column 6 minus line 47, column 4

The first specific differences between the Atchison, Topeka and Santa Fe Railway Company and the other companies examined up to this point may be noted in the form and the content of Exhibit II. It appears that the Valuation Division leans rather heavily upon the valuation work of the Interstate Commerce Commission in determining the cost factors and the condition percent figures to be applied to the various items of property. The structure of Exhibit II is adjusted to take account of this. In most companies, the "Plant and Equipment" category is broken down to show the gross additions and betterments made to the company's property since the last "reproduction cost study" was made by the Valuation Division. All property (except land) in existence *prior* to the last reproduction cost study is placed under the heading of "Other." As explained in earlier sections of this report, the purpose behind this distinction lies merely in the facility with which the cost factors and the condition percent factors may be applied in the determination of the other cost magnitudes shown on Exhibit II. The distinction between the additions and betterments of the various years and other property is not maintained for the Atchison, Topeka and Santa Fe Railway Company. In fact, the company is not required to report its yearly additions and betterments to the Valuation Division, although this could, presumably, be required without placing too great an additional burden upon the company. Instead, the division makes use of the reproduction cost information provided by the Interstate Commerce Commission and applies this directly to the various types of property shown in the summary control statement. As a result, the property listed as "Other" in Exhibit II (line 7, column 1) does not have particular reference to property installed prior to the last reproduction cost study. It merely describes all of the plant and equipment not specifically listed in lines 2 to 6, inclusive, of Exhibit II. As can be seen by referring to the summary control in Exhibit III, this "Other" property accounts for what is commonly thought of as the fixed railroad structures such as tracks, ballast, roadway buildings, ties, station and office buildings, and the like.

A more important difference exists between the data of Exhibit II for the Atchison, Topeka and Santa Fe Railway Company and the comparable data for the other companies. For although the term "Historical Cost New" is used to describe the basic computational data in Exhibit II, the figures are not true historical cost figures in the sense in which this term is applied to the other companies. For a great many railroads the true historical costs are unavailable, in view of the fact that a great deal of the property is of a distant historical origin, the cost records of which have long since been destroyed or lost. These "historical cost" figures are based upon the Interstate Commerce Commission study of 1910-1914 which attempted to impute historical costs for many of the railroads on the basis of the cost

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT II

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION AND REPRODUCTION COST NEW, LESS DERPECIATION
(California Only)

1951

	Type of Property	*Historical Cost New* *(1)*	*Ratio* *(2)*	*Reproduction Cost New* *(3)*	*Condition (Percentage)* *(4)*	*Historical Cost New Less Depreciation* *(5)*	*Reproduction Cost New Less Depreciation* *(6)*
1	Plant and equipment						
2	Land	$30,089,883	---	$29,700,000	100	$30,089,883	$29,700,000
3	Public improvements	2,417,849	1.91	4,618,092	75–72	1,813,387	3,325,026
4	Rolling equipment	91,242,156	1.75	159,673,773	70–66	63,869,509	105,384,690
5	Floating equipment	2,114,474	1.67	3,531,172	60	1,268,684	2,118,703
6	Retired property still in place	341,527	2.00	683,054	20	68,305	136,611
7	Other	136,716,742	1.91	261,128,977	75–72	102,537,557	188,012,863
8	Total plant and equipment	$262,922,631		$459,335,068		$199,647,325	$328,677,893
9	Materials and supplies	$4,429,530	1.00	$4,429,530	80	$3,543,624	$3,543,624
10	Total to here	$267,352,161		$463,764,598		$203,190,949	$332,221,517
11	Miscellaneous physical property						
12	Land	$5,506,667	---	$6,000,000	100	$5,506,667	$6,000,000
13	Other	1,218,127	2.00	2,436,254	73–70	889,233	1,705,378
14	Total miscellaneous physical property	$6,724,794		$8,436,254		$6,395,900	$7,705,378
15	Total owned, state-assessed	$274,076,955		$472,200,852		**$209,586,849**	**$339,926,895**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT III

DETAIL OF THE COMPUTATION OF COST EVIDENCE: SUMMARY CONTROL

(California Only)

1951

	Items	Assessed by State			Licensed Motor Vehicles (4)	Other [a] (5)	Total Within Exterior Bounds of California (6)
		Land (1)	Other (2)	Total (3)			
1	Engineering	--------	--------	--------	--------	$3,055,299	$3,055,299
2	Land	$30,089,883	--------	$30,089,883	--------	--------	30,089,883
3	Right of way	--------	$9,983	9,983	--------	--------	9,983
4	Grading	--------	18,746,567	18,746,567	--------	--------	18,746,567
5	Tunnels and subways	--------	1,319,628	1,319,628	--------	--------	1,319,628
6	Bridges, trestles, culverts	--------	15,313,948	15,313,948	--------	--------	15,313,948
7	Ties	--------	9,659,080	9,659,080	--------	--------	9,659,080
8	Rails	--------	16,933,062	16,933,062	--------	--------	16,933,062
9	Other track material	--------	11,643,001	11,643,001	--------	--------	11,643,001
10	Ballast	--------	4,045,112	4,045,112	--------	--------	4,045,112
11	Track laying and surfacing	--------	8,075,629	8,075,629	--------	--------	8,075,629
12	Fences, snow sheds, signs	--------	333,826	333,826	--------	--------	333,826
13	Crossings and signs	--------	1,241,998	1,241,998	--------	--------	1,241,998
14	Station and office buildings	--------	13,562,118	13,562,118	--------	--------	13,562,118
15	Roadway buildings	--------	1,506,921	1,506,921	--------	--------	1,506,921
16	Water stations	--------	1,764,010	1,764,010	--------	--------	1,764,010
17	Fuel stations	--------	959,681	959,681	--------	--------	959,681
18	Shops and engine houses	--------	8,844,761	8,844,761	--------	--------	8,844,761
19	Storage warehouses	--------	43,670	43,670	--------	--------	43,670
20	Wharves and docks	--------	357,826	357,826	--------	--------	357,826
21	Communication systems	--------	2,027,495	2,027,495	--------	--------	2,027,495
22	Signals and interlockers	--------	5,816,287	5,816,287	--------	--------	5,816,287
23	Power plants	--------	260,336	260,336	--------	--------	260,336
24	Power transmission systems	--------	189,225	189,225	--------	--------	189,225
25	Miscellaneous structures	--------	179,980	179,980	--------	--------	179,980
26	Roadway machines	--------	473,360	473,360	--------	--------	473,360
27	Roadway small tools	--------	32,296	32,296	--------	--------	32,296
28	Public improvements—construction	--------	2,417,849	2,417,849	--------	--------	2,417,849
29	Revenues and operating expenses during construction	--------	(121,801)	(121,801)	--------	--------	(121,801)
30	Other expenditures—road	--------	384	384	--------	--------	384
31	Shop machinery	--------	3,104,363	3,104,363	--------	--------	3,104,363
32	Power plant machinery	--------	789,457	789,457	--------	--------	789,457
33	Steam locomotives	--------	--------	--------	--------	14,349,557	14,349,557
34	Other locomotives	--------	--------	--------	--------	25,862,384	25,862,384
35	Freight—train cars	--------	--------	--------	--------	39,658,029	39,658,029
36	Passenger—train cars	--------	--------	--------	--------	10,149,160	10,149,160
37	Floating equipment	--------	2,114,474	2,114,474	--------	--------	2,114,474
38	Work equipment	--------	--------	--------	--------	1,223,026	1,223,026
39	Miscellaneous equipment	--------	--------	--------	$327,204	--------	327,204
40	General and office expense	--------	--------	--------	--------	955,734	955,734
41	Interest during construction	--------	--------	--------	--------	5,593,506	5,593,506
42	Subtotal	$30,089,883	$131,644,526	$161,734.409	$327,204	$100,846,695	$262,908,308
43	Land	$5,506,667	--------	$5,506,667	--------	--------	$5,506,667
44	Improvements	--------	$1,218,127	1,218,127	--------	--------	1,218,127
45	Materials and supplies	--------	4,429,530	4,429,530	--------	--------	4,429,530
46	Retired property still in place	--------	341,527	341,527	--------	--------	341,527
47	**Total**	**$35,596,550**	**$137,633,710**	**$173,230,260**	**$327,204**	**$100,846,695**	**$274,404,159**

NOTE: [a] This column includes property assessed by the State and listed separately by the company in its report to the Valuation Division.

SOURCE: State Board of Equalization, Valuation Division, Work Sheets—Summary Control for 1951.

levels which prevailed in the year the study was made. Since that time the figures have been adjusted for retirements and for any additions and betterments, the latter taken at the cost levels which prevailed when the property was added to the system. Thus, the figures in column 1 of Exhibit II are labeled "Historical Cost New" primarily for convenience rather than for the absolute accuracy of the term.

Exhibit IV itself is not greatly different for the Atchison, Topeka and Santa Fe Railway Company than for any of the other companies. There is, however, an important difference in the relationship between Exhibit IV and Exhibit V. The latter is simply a condensed version of the income statement which appears in the company's annual report to the stockholders. It shows up some important differences in accounting which make for special difficulties in valuing the company's property by the capitalized income method. Under the prescriptions of Interstate Commerce Commission, this company has only recently set up depreciation reserve accounts and still does not show the annual contributions to these accounts as operating expenses on the income statement. Instead, the company (the same is true for most railways) shows maintenance charges as operating expenses. This, in turn, relates to the practice of not "retiring" much of the railroad property in the usual accounting sense, but "replacing" it and considering the excess of the costs of replacement over scrap value as an operating expense. As a result, the figure for "Depreciation" which appears in Exhibit IV (line 3, column 1) does not appear in Exhibit V, the income statement. This figure is obtained from special reports which the company makes to the Interstate Commerce Commission and to the Valuation Division of the State Board of Equalization. Thus, the *Annual Report of the Atchison, Topeka and Santa Fe Railway Company to the Interstate Commerce Commission for the year ended December 31, 1950* shows the following expansion of the income statement:

Depreciation—road	$6,837,432
Retirements—road	864,239
Amortization of defense projects—road	216,459
Retirements—equipment	(41,273)
Depreciation—equipment	15,882,139
Amortization of defense projects—equipment	356,755
Total	$24,115,751

The same information is reported in the financial statement of the company to the Valuation Division. It is this "depreciation" figure which becomes line 3, column 1 in Exhibit IV.

The remainder of Exhibit IV is, to all intents and purposes, the same as for other companies. It should be noted, however, that once again there is a consideration of the land reversion adjustment for this company in the 1951 valuation. For the Atchison, Topeka and Santa Fe Railway Company this is computed by multiplying the "reproduction cost" of the land in California by 0.295 and 0.262. These last two figures

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT IV

COMPUTATION OF EARNINGS EVIDENCE

(System and California)

1951

	Items	*1950* (*1*)	*1949* (*2*)	*1948* (*3*)	*1947* (*4*)	*1946* (*5*)	*5-Year Average* (*6*)	(*7*)
1	Operating income							
2	Net income	$81,213,346	$55,649,389	$68,715,752	$54,302,422	$45,554,082	--------	
3	Depreciation	24,115,751	22,174,647	20,958,926	21,819,441	19,903,209	--------	
4	Net before depreciation	**$105,329,097**	**$77,824,036**	**$89,674,678**	**$76,121,863**	**$65,457,291**	**$82,881,393**	
5	Expectancy: 25 years							
6	Capitalization rates:							
7	(1) 5.000% + 2.095% annuity = 7.095%.							
8	(2) 5.500% + 1.955% annuity = 7.455%.							
9	Value computation							
10	Period	*1-Year Basis, 1950*				*5-Year Average*		
11	Capitalization rate	7.095%		7.455%		7.095%		7.455%
12	Net income before depreciation	$105,329,097		$105,329,097		$82,881,393		$82,881,393
13	Capitalized income	$1,484,553,869		$1,412,865,150		$1,168,166,215		$1,111,755,774
14	Adjustments							
15	Working capital (—)	27,223,456		27,223,456		27,426,901		27,426,901
16	System earning value including motor vehicles	$1,457,330,404		$1,385,641,694		$1,140,739,314		$1,084,328,873
17	California portion including motor vehicles (apply 17.03%)	$248,183,368		$235,974,780		$194,267,905		$184,661,207
18	Plus California land reversions	8,761,500		7,781,400		8,761,500		7,781,400
19	Total	$256,944,868		$243,756,180		$203,026,405		$192,442,607
20	California earning value excluding motor vehicles (apply 99.9%)	**$256,687,923**		**$243,512,424**		**$202,823,379**		**$192,250,164**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT V

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE SYSTEM
(Income Statement)

1951

	Items	*Amounts* (1)	(2)	(3)
1	Railway operating revenues:			
2	Freight	$422,154,801		
3	Passenger	44,813,019		
4	Mail	31,324,955[a]		
5	Express	7,095,590		
6	Miscellaneous	17,287,245		
7	Total railway operating revenues		$522,675,610	
8	Railway operating expenses:			
9	Maintenance of way and structures	$72,309,805		
10	Maintenance of equipment	88,680,113		
11	Traffic	11,680,715		
12	Transportation—rail line	157,672,833		
13	Miscellaneous operations	9,937,891		
14	General expenses	10,515,862		
15	Total railway operating expenses		350,797,219	
16	Net operating revenues			$171,878,391
17	Railway tax accruals			90,375,780
18	Rents—equipment and facility—income:			
19	Hire of freight cars	$1,123,634		
20	Rent from other equipment	371,797		
21	Joint facility rent income	1,365,945		
			2,861,376	
22	Rents—expenses:			
23	Rent for equipment, except cars	$736,432		
24	Joint facility rents	2,414,209		
			3,150,641	
25	Net rents (expense)			289,265
26	Net railway operating income			$81,213,346

NOTE: [a] Includes $9,108,845 back mail pay applicable to prior years.

SOURCE: The Atchison, Topeka and Santa Fe Railway Company, 56th Annual Report, December 31, 1950, p. 20.

represent the application of a 5% rate and a 5½% rate respectively. The amount of land is shown in Exhibit II as $29,700,000. Since only the California land is considered in this computation, the reversion figure is used to adjust after the allocation of the system earnings value to California. The two allocation percentages (lines 17 and 20) are discussed in conjunction with Exhibit X.

There are two small computational errors on Exhibit IV. The first of these appears in column 5, lines 19 and 20. The figure on line 19 *should* read $203,029,405. The figure on line 20 *should* read $202,826,376. The second of these appears in line 16, column 1. This figure *should* read $1,457,330,413.

To *Exhibit IV*	*From*
Line 2, column 1	Exhibit V, Line 26, column 3
Line 3, column 1	Report of the Company to the Interstate Commerce Commission or the Financial Statement of the Company to the Valuation Division. The figure is part of the total operating expenses shown in line 15, column 2 of Exhibit V. See above for explanation.
Exhibit IV—Continued	
Line 5	Computed from "life expectancy" tables and by physical appraisals —See Appendix B.
Lines 7 and 8	The "basic" interest rate is assumed; the annuity factor is computed from the "basic" interest rate.
Line 15, columns 1 and 3	Exhibit V: (line 15, column 2 minus $24,115,751) divided by 12
Line 18, columns 1 and 5	Exhibit II, line 2, column 3 multiplied by 0.295
Line 18, columns 3 and 7	Exhibit II, line 2, column 3 multiplied by 0.262
Lines 17 and 19	See Exhibit X and accompanying explanation.

Exhibits VI, VII, VIII and IX show the computational detail behind the stock and debt evidence of value for the Atchison, Topeka and Santa Fe Railway Company valuation of 1951. Once again, the form of these exhibits is substantially the same as that for the other companies in the sample, although there are one or two important differences in content.

The first of these differences relates to the item shown in line 13, column 2 of Exhibit VI. This represents the

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT VI

COMPUTATION OF STOCK AND DEBT EVIDENCE

(System and California)

1951

	Items	*Amounts*			
		(1)	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on sales:				
3	Capital stock		$420,763,858		
4	Bonds and equipment obligations		262,304,153		
				$683,068,011	
5	Value based on books:				
6	Current liabilities		$127,252,847		
7	Deferred liabilities	$2,617,175			
8	Less: 20% of Account 770	523,435			
			2,093,740		
9	Unadjusted credits: 90% of Account 778		7,609,000		
				136,955,587	
10	Total debts				$820,023,598
11	Assets subtracted from debts				
12	Value based on sales:				
13	Securities		$79,066,255		
14	Value based on books:				
15	Capital and other reserves		128,794		
16	Current assets	$256,391,283			
17	Less: Materials and supplies	50,418,465			
			205,972,818		
18	Deferred assets	2,164,119			
19	Less 20% Account 722	379,231			
			1,784,888		
20	Prepayments	460,513			
21	Plus 45% Account 727	661,699			
			1,122,212		
22	Total assets subtracted from debts				288,074,967
23	System stock and debt value including motor vehicles				$531,948,631
	Less:				
24	Nonoperating property			30,000,000	
25	Materials and supplies			50,418,465	
					80,418,465
26					$451,530,166
27	California stock and debt value including motor vehicles (apply 17.03%)				$76,895,587
28	Add: California materials and supplies				4,429,530
29					$81,325,117
30	California stock and debt value excluding motor vehicles (apply 99.9%)				**$81,243,792**
31	5-year average stock and debt value:				
32	1946	$548,115,189			
33	1947	466,269,827			
34	1948	491,175,085			
35	1949	462,790,466			
36	1950	531,948,631			
37	Total		$2,500,299,198		
38	5-year average		**$500,059,839**		
39	Less: Miscellaneous physical property	30,000,000			
40	Materials and supplies	50,418,465			
			80,418,465		
41			$419,641,374		
42	California stock and debt value including motor vehicles (apply 17.03%)		$71,464,926		
43	Plus: Materials and supplies in California		4,429,530		
44			$75,894,456		
45	California stock and debt value excluding motor vehicles (apply 99.9%)		**$75,818,562**		

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT VII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Value Based on Sales)

1951

	Issues	*Number of Shares Outstanding (1)*	*Par Value of Issue (2)*	*Average of Monthly High and Low Prices (3)*	*Computed Value (4)*
1	Common stock	$2,427,060	--------	$118.5938	$287,834,268
2	Preferred stock	1,241,728	--------	107.0521	132,929,590
3	Total to here	$3,668,788	--------	--------	$420,763,858
4	General mortgage bonds—4—95	--------	$151,349,500	$128.2865	$194,160,976
5	Adjusted mortgage, annual—4—95	--------	44,500	120.1562	53,470
6	Adjusted mortgage, semi-annual—4—95	--------	49,073,000	120.1562	58,964,252
7	Equipment trust certificates—2¼—51/52	--------	1,840,000	100.353 [a]	1,846,495
8	Equipment trust certificates "E"—1⅝—51	--------	2,000,000	100.434 [a]	2,008,680
9	Equipment purchase contracts	--------	5,270,280	Par [a]	5,270,280
10	Total				**$683,068,011**

NOTE: [a] As used by company.

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT VIII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Monthly High and Low Security Prices)

1951

			Common (1)	*Preferred (2)*	*General 4's-1995 (3)*	*Adjusted Mortgage-1995 (4)*	*Adjusted 4's-1995 Bid (5)*	*Equipment Trust Certificates-E 1⅝-6⁹⁄₂₀/50-51 (6)*
1	January	Low	$100.125	$103.500	$128.000	$119.250	$119.500	$100.125
2		High	110.250	104.875	131.375	120.500		100.250
3	February	Low	103.000	103.500	127.000	119.500	120.000	100.125
4		High	108.250	104.875	129.125	120.000		100.250
5	March	Low	104.000	104.000	128.125	119.875	120.000	100.125
6		High	111.750	106.500	128.750	120.500		100.250
7	April	Low	109.500	105.625	128.750	119.875	120.000	100.125
8		High	114.750	108.000	129.750	120.250		100.250
9	May	Low	110.250	107.000	127.375	119.750	119.875	100.125
10		High	114.875	109.250	129.000	121.250		100.250
11	June	Low	108.000	104.250	126.000	120.000	120.000	100.125
12		High	121.750	108.500	127.875	120.000		100.250
13	July	Low	108.750	105.000	126.000	120.000	120.000	99.750
14		High	125.875	107.000	128.625	120.250		99.750
15	August	Low	120.375	105.375	129.000	120.000	120.500	99.750
16		High	125.750	108.750	130.250	120.250		99.750
17	September	Low	121.500	107.375	127.375	120.250	120.000	100.000
18		High	134.875	110.500	129.500	121.500		100.000
19	October	Low	122.000	107.250	125.250	119.000	119.000	100.000
20		High	135.625	109.000	128.000	120.500		100.000
21	November	Low	120.000	108.250	129.000	120.000	120.250	100.000
22		High	133.000	110.000	130.250	120.500		100.000
23	December	Low	129.500	109.750	126.000	120.000	120.500	100.000
24		High	152.500	111.125	128.500	120.250		100.000
25	Totals		$2,846.250	$2,569.250	$3,078.875	$2,883.750	$1,439.625	$2,401.250
26	Average prices of monthly high and low prices		$118.5938	$107.0521	$128.2865	$120.1562	$119.9688	$100.0521

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT IX

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1951

		(1)	(2)	(3)
1	**ASSETS**			
2	Road and equipment			
3	Road	$935,640,572		
4	Equipment	557,534,759		
5	Total road and equipment		$1,493,175,331	
6	Less:			
7	Accrued depreciation—road	$53,554,827		
8	Accrued depreciation—equipment	274,884,203		
9	Accrued amortization of defense projects—road	16,255,186		
10	Accrued amortization of defense projects—equipment	88,396,457		
			433,090,673	
11	Investment in transportation property, less recorded depreciation and amortization			$1,060,084,658
12	Investments in terminal and collateral companies			34,603,168
13	Miscellaneous physical property	$24,344,629		
14	Less: Accrued depreciation	4,328,075		
15	Investment in miscellaneous physical property less depreciation			20,016,554
16	Capital and other reserve funds			124,420
17	United States government bonds			3,172,356
18	Other investments			727,751
19	Total to here			$1,118,728,907
20	Current assets			
21	Cash	$38,977,858		
22	United States treasury notes	113,000,000		
23	United States treasury notes—increment	2,629,920		
24	Other temporary cash investments	115,000		
25	Special deposits	296,873		
26	Loans and bills receivable	265		
27	Traffic and car service balances—debit	6,622,851		
28	Agents and conductors	5,419,338		
29	Miscellaneous accounts receivable	29,430,452		
30	Materials and supplies	50,418,465		
31	Interest and dividends receivable	86,459		
32	Accrued accounts receivable	8,468,756		
33	Other current assets	925,046		
34	Total current assets			256,391,283
35	Deferred assets			
36	Working fund advances	$267,964		
37	Other deferred assets	1,896,155		
38	Total deferred assets			2,164,119
39	Unadjusted debits			
40	Prepayments	$460,513		
41	Other unadjusted debits	1,470,442		
42	Total unadjusted debits			1,930,955
43	Total assets			$1,379,215,264

		(1)	(2)
1	**LIABILITIES**		
2	Capital stock		
3	Capital stock outstanding	$366,878,800	
4	Premium on capital stock	717,800	
5	Total capital stock		$367,596,600
6	Funded debt		
7	Bonds	$200,467,000	
8	Equipment obligations	9,110,280	
9	Total funded debt outstanding		209,577,280

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT IX—Continued

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1951

		(1)	(2)
	LIABILITIES—Continued		
10	Current liabilities		
11	Audited accounts and wages payable	$30,474,056	
12	Miscellaneous accounts payable	8,620,935	
13	Interest matured unpaid	401,389	
14	Dividends matured unpaid	296,873	
15	Unmatured interest accrued	2,528,664	
16	Unmatured dividends declared	7,958,440	
17	Accrued accounts payable	6,050,594	
18	Taxes accrued	68,103,330	
19	Other current liabilities	2,818,566	
20	Total current liabilities		$127,252,847
21	Deferred liabilities		2,617,175
22	Unadjusted credits		
23	Premium on funded debt	$851	
24	Accrued depreciation—leased property	12,503	
25	Other Unadjusted credits	8,455,435	
26	Total unadjusted credits		8,468,789
27	Corporate surplus		
28	Additions to property through income and surplus	$83,121,014	
29	Funded debt retired through income and surplus	533,625	
30	Other corporate surplus	511,787	
31	Total corporate surplus		$84,166,426
32	Profit and Loss—balance		$579,536,147
33	Total Liabilities		$1,379,215,264

SOURCE: 56th Annual Report, The Atchison, Topeka and Santa Fe Railway Company, December 31, 1950, pp. 22-23.

securities of other companies, which securities are currently held by the Atchison, Topeka and Santa Fe Railway Company. As indicated above, an attempt is made to determine the market value of these securities and then to deduct this value from the total debts shown on line 10. Since this portion of Exhibit VI relates to the Atchison, Topeka and Santa Fe Railway Company *system* rather than merely to the California portion of the system, the securities involved represent ownership or part ownership in companies in other states as well as in those located in California. The Valuation Division makes no attempt to determine through its own calculations the market value of these securities. This would, indeed, be difficult, since no normal market exists for the majority of the issues. The Atchison, Topeka and Santa Fe Railway Company annually prepares a list of the companies (by the state of their location) in which it has an ownership interest, together with its own estimates of the market value of that ownership interest. In almost all cases the value estimate is based upon the assessed value of the company in which the interest is maintained. As a result, the accuracy of the market value estimates by the company is no greater than the accuracy of the techniques of the assessing agencies of the various states in which the "subsidiary" companies are located. In California, for example, the estimate is based upon the assumption that the property is assessed at 50 percent of full value. Obviously, the assessment figure used must apply to the previous tax year rather than to the current tax year. The following list is a condensed version of the data submitted by the company to the Valuation Division. All of the California holdings are shown individually. For the holdings in the remaining 10 states, only the totals are shown:

California	*Estimated value*	*Explanation*
Santa Fe Land Improvement Co.	$6,492,600	1950 assessed value of 50% doubled
One-half ownership of Sunset Ry.	122,650	One-half of 1950 assessed value of 50% doubled
One-half ownership of Alameda Belt Line	360,260	One-half of 1950 assessed value of 50% doubled
One-third ownership of Central California Traction Company	266,670	One-third of 1950 assessed value of 50% doubled
One-half ownership of Oakland Terminal Railway Company	62,450	One-half of 1950 assessed value of 50% doubled
Chanslor-Canfield Midway Oil Co.	28,475,490	1950 assessed value of 50% doubled
Coline Gasoline Corporation	301,880	1950 assessed value of 50% doubled

California	*Estimated value*	*Explanation*
Los Angeles Corporations:		
Central Mfg. District, Inc.	$8,448,740	1950 assessed value of 50% doubled
Los Angeles Union Stockyards Co.	852,140	
Westland Warehouses, Inc.	31,780	
Los Angeles Junction Ry. Co.	2,306,350	
Bandini Estates Company	2,493,480	1950 assessed value of 50% doubled
California total	$50,214,490	
Arizona total	75,775	
New Mexico total	381,723	
Colorado total	220,230	
Kansas total	475,939	
Missouri total	344,100	
Illinois total	2,923,185	
Oklahoma total	323,495	
Texas total	9,724,507	
Louisiana total	236,776	
Other property	14,146,035	
Total	$79,066,255	

It is this final total which appears as the "value based on sales" (the term is something of a misnomer in this context) for the asset adjustment in Exhibit VI.

There is one substantial error which should be noted in connection with this section of Exhibit VI. The balance sheet (Exhibit IX) shows an amount of $3,172,356 for United States Government bonds held by the Atchison, Topeka and Santa Fe Railway Company. This amount should clearly have been removed, along with that which applies to the other securities. The Valuation Division appears to have overlooked this in the 1951 valuation, however.

One other point of theory is involved in the adjustments below line 23 in Exhibit VI. Line 27 shows the application of the allocating percentage (17.03) to distinguish between the California property and the property of the system as a whole. This percentage is applied *after* the materials and supplies of the system as a whole have been removed (see line 25). The California portion of the materials and supplies is added back *after* the application of the allocation percentage. This means that materials and supplies are not allocated by the formula technique which is applied to other property but on the basis of the relationship between the balance sheet figure for the system and the historical cost figure for the California portion. This unusual allocation technique comes from the fact that the allocation percentage is determined without reference to materials and supplies. This determination is discussed in the explanation of Exhibit X below. The nonoperating property is also removed prior to the application of the allocation percentage, although, since this is not considered to be part of the *unit* value, the California portion is not added back until the unit value itself has been determined.

To Exhibit VI	*From*
Line 3, column 2	Exhibit VII, line 3, column 4
Line 4, column 3	Exhibit VII, line 10, column 4
Line 6, column 2	Exhibit IX, line 20, column 2 (Liabilities)
Line 7, column 1	Exhibit IX, line 21, column 3 (Liabilities)
Line 8, column 1	20% of line 7, column 1, Exhibit VI
Line 9, column 2	Exhibit IX, line 25, column 2 (Liabilities) taken at 90% and rounded
Line 13, column 2	See explanation above
Line 15, column 2	Exhibit IX, line 16, column 3 (Assets) See explanation below
Line 16, column 1	Exhibit IX, line 34, column 3 (Assets)
Line 17, column 1	Exhibit IX, line 30, column 1 (Assets)
Line 18, column 1	Exhibit IX, line 38, column 3 (Assets)
Line 19, column 1	Exhibit IX, line 37, column 1 (Assets) taken at 20%
Line 20, column 1	Exhibit IX, line 40, column 1 (Assets)
Line 21, column 1	Exhibit IX, line 41, column 1 (Assets) taken at 45%
Line 24, column 3	See explanation below
Line 25, column 3	Exhibit IX, line 30, column 1 (Assets)
Line 28, column 4	Exhibit II, line 9, column 1
Line 36, column 5	Exhibit VI, line 23, column 4

Although the balance sheet of the Atchison, Topeka and Santa Fe Railway Company system is somewhat different from those already presented, it is put to essentially the same use in the development of the detail behind Exhibit VI. The only major items on Exhibit VI which are not taken directly from this balance sheet are those which relate to the market value of the company's capital structure, and the securities of other companies in the portfolios of the Atchison, Topeka and Santa Fe Railway Company. There are, of course, other figures which are taken at some percentage of their book magnitudes (lines 8, 9, 19 and 21 of Exhibit VI, for example) but these percentages are, as usual, more or less arbitrarily selected, and are consequently incapable of documentation. From the opposite point of view, the only large balance sheet items which are not represented on Exhibit VI are the corporate surplus items on the liabilities side and the Road and Equipment group on the assets side. It is the latter, of course, which are the object of appraisal under the unit rule. The capital stock and funded debt items are, as indicated above, not transferred directly from the balance sheet to Exhibit VI but are the raw materials of the market value computations of Exhibit VII.

Account #770 (line 8 of Exhibit VI) refers to the "Other Deferred Liabilities" account and contains such things as "Unmatured assessments for public improvements," "Amounts withheld pending completion of work," and other minor items. Account #778 (line 9 of Exhibit VI) is the "Other Unadjusted Credits" account and contains "Rents Collected in Advance," "Unsettled Personal Injury Claims," and "Unsettled Property Loss and Damage Claims." Account #722 (line 19 of Exhibit VI) is labeled "Other Deferred Assets" and contains "Estimated Value of Salvage," "Accrued Interest on Advances," etc. Account #727 (line 21 of Exhibit VI) is entitled "Other Unadjusted Debits" and includes "Preliminary Surveys," "Advances to Other Companies," and various minor items.

All of these are, of course, prescribed by the Interstate Commerce Commission in the Uniform System of Accounts.

The amount shown for "Capital and Other Reserves" on Exhibit VI (line 15, column 2) is incorrect. It should be $124,420 taken from line 16, column 3 (Assets) of Exhibit IX. No explanation is available for this error.

The $30,000,000 shown as the adjustment for nonoperating property (line 24, column 3 of Exhibit VI) is a rough estimate. This adjustment applies to the system as a whole, while the amount for the reproduction cost new in Exhibit II (line 14, column 6) for miscellaneous physical property is for California only. Essentially, the adjustment is based upon the assumption that the nonoperative property is distributed between the system as a whole and the California portion in the same way that the operative property is distributed. No great accuracy can be claimed for this adjustment, however.

To Exhibit VII	*From*
Line 1, column 3	Exhibit VIII, line 26, column 1
Line 2, column 3	Exhibit VIII, line 26, column 2
Line 4, column 3	Exhibit VIII, line 26, column 3
Line 5, column 3	Exhibit VIII, line 26, column 4
Line 6, column 3	Exhibit VIII, line 26, column 4
Lines 7, 8 and 9	Estimated by company. See explanation below.

Exhibit VIII shows the usual computation of the average of the monthly high and low securities prices, while Exhibit VII shows these average prices being put to use in the computation of the "value based on sales" of the securities. The only points requiring explanation relate to the two types of equipment trust certificates and the equipment purchase contracts. These securities are not regularly marketed. Consequently the Valuation Division accepts the company's estimates of their market value. Ordinarily, the division would simply include such securities at their par value, but in the present cases the company's estimates were accepted. Exhibit VIII, column 4, shows one computational error. The total of the column should be $2,883.250. This, of course, changes the average shown in line 26 to $120.1354.

The formula adopted by the Valuation Division for the interstate allocation of railroad value is that developed by the National Association of Tax Administrators. The results of the application of this formula are shown in Exhibit X. In the formula there are three basic elements of allocation—the so-called reproduction cost new less depreciation; the terminal factors; and the line-haul factors. Of these, the greatest weight is given to the cost factor (48.23%); the second greatest weight is given to the line-haul factor (39.05%); and the least weight is given to the terminal factor (12.72%). As in all other cases, the basic techniques involve a comparison of the amount of each factor attributable to the entire system with the amount attributable to California only. This is computed as a percentage, the percentage is weighted as suggested above, the weighted percentages are added, and the result is the allocation percentage applied to both stock and debt and earnings evidences.

The figure in line 1, column 1 of Exhibit X, labeled "Reproduction Cost New Less Depreciation," is obtained from the Interstate Commerce Commission. The label is somewhat inaccurately applied, however, in view of the techniques of computation mentioned above in the discussion of Exhibit II. It appears that the cost

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT X

COMPUTATION OF INTRASTATE ALLOCATION AND TAXABLE PROPERTY PERCENTAGES

1951

	Items	*The System (1)*	*California Portion (2)*	*Percentage in California (3)*	*Weight (Percentage) (4)*	*Weighted Percentage in California (5)*
1	Reproduction cost new less depreciation	$1,105,323	$201,099	18.19	48.23	8.77
2	Terminal factor					
3	Tons originated	39,895	6,889	---	---	---
4	Tons terminated	37,663	8,621	---	---	---
5	Total	77,558	15,510	---	---	---
6	Total times 3	232,674	46,530	---	---	---
7	Tons received	15,501	3,610	---	---	---
8	Tons delivered	17,733	1,811	---	---	---
9	Total terminal factor	265,908	51,951	19.54	12.72	2.48
10	Line haul factor					
11	Traffic units	30,128,882	4,459,219	14.80	39.05	5.78
12	State allocation factor	--------	--------	---	**100.00**	**17.03**
13	Total historical costs		$274,404,159			
14	Total owned, state-assessed		**$274,076,955**			
15	Taxable percentage		**99.88%**			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

concept adopted in the development of the National Association of Tax Administrators' formula corresponds more closely with the historical cost concept of the Valuation Division than with the division's concept of reproduction cost. As a result, the figure in line 1, column 2 of Exhibit X is taken from the *historical* cost computations of the Valuation Division. The rest of the figures in Exhibit X, however, apply to the calendar year 1949 (which, in turn, applies to the 1950 valuation), since there is always a one-year lag between the calendar year being valued and the figures supplied by the Interstate Commerce Commission.

The interstate allocation factor finally determined appears in line 12, column 5 of Exhibit X. This is then taken to line 17 of Exhibit IV and to lines 27 and 42 of Exhibit VI as the allocation percentage.

Lines 13, 14, and 15 of Exhibit X show the computation of the percentage of taxable property within the boundaries of the State of California to the total property within the State. The basic idea for this calculation comes from Exhibits II and III. It should be noted that this percentage is based upon figures which apply to *all* types of physical property and not merely to operative physical property. This is clearly an error, in view of the fact that the nonoperative property is not considered to be part of the unit value and consequently should not be part of this allocation formula. The error in the allocation percentage which is introduced by this error of computation is, of course, negligible.

To Exhibit X	*From*
Line 1, column 1	Interstate Commerce Commission estimate. See explanation above.
Line 1, column 2	Cost evidence of the Valuation Division for the 1950 valuation. See explanation above.
Lines 3 to 11, inclusive, columns 1 and 2	Special report from the company to the Valuation Division.
Column 3	Computed from the National Association of Tax Administrators. Not shown here.
Line 13, column 2	Exhibit III, line 47, column 6
Line 14, column 2	Exhibit II, line 15, column 1

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—1952

A comparison of the weighting sheets for 1951 and 1952 (Exhibits I and XI, respectively) shows that the Valuation Division devised a markedly different system of weights to apply to the evidences of value for the 1952 valuation. It has already been pointed out that this was true for many of the companies in this sample. In spite of this change in the weighting system, however, the same relationship between the weighted figures and the final unit value prevails in the 1952 valuation as in the 1951 valuation for the Atchison, Topeka and Santa Fe Railway Company. The unit value of $140,000,000 (line 13, column 1) is still lower than any of the weighted figures shown in Exhibit I, and is lower than every "basic" evidence of value except those representing stock and debt values.

A comparison between the unit value and the weighted and unweighted evidences of value for the two years is particularly revealing. This is presented in summary form in the tabular illustration below:

		1951	*1952*
I.	(a) Highest "basic" evidence	$332,221,517	$356,221,898
	(b) Lowest "basic" evidence	75,894,456	79,083,433
	(c) Difference	$256,327,061	$277,138,465
	(d) (b) as a percentage of (a)	22.844%	22.201%
II.	(a) Highest weighted figure	$218,469,400	$195,863,300
	(b) Lowest weighted figure	141,617,900	144,861,600
	(c) Difference	$76,851,500	$51,001,700
	(d) (b) as a percentage of (a)	64.823%	73.960%
III.	(a) Simple average of 8 basic evidences	$198,488,241	$185,190,040
	(b) Unit value	138,990,000	140,000,000
	(c) Difference	$59,498,241	$45,190,040
	(d) (a) is higher than (b) by	42.808%	32.279%

The figures in Section I of the above tabulation show that the "range of uncertainty," as roughly measured by the percentage figures of line (d), is approximately the same in each year. The figures in Section II, however, show that this "range of uncertainty" is considerably reduced (the percentage figure in line (d) is higher) in 1952 as a result of the adoption of the new weighting system. It should be noted that this was produced primarily by a lowering of the highest weighted figure rather than by a raising of the lowest weighted figure.

It might be supposed that the revision of the weighting system and the consequent reduction in the "range of uncertainty" would be indicative of an attempt to make the choice of a final unit value a more objective one, or at least to document the subjective character of the decision by showing the weights which would have to be used to produce that unit value. But this supposition would be no more correct for the 1952 valuation than for the 1951 valuation. In 1952 the unit value of $140,000,000 is still almost $5,000,000 or 3.473 percent below the *lowest* weighted figure. The simple average of all of the weighted figures is shown in line 11, column 5 as $175,056,250. This is more than $35,000,000 or 25.040 percent higher than the unit value for this year.

Section III in the above tabulation compares the simple average of the eight "basic" evidences of value in each of the two years as this magnitude is related to the unit value finally chosen. It appears that the unit value is somewhat closer to this simple average in 1952 than in 1951. This seems to reflect the changes in the computation of the earnings evidence, whereby a 7% capitalization rate is substituted for the two rates of 5% and 5½%, and changes in the technique of applying the rates. These are apparently considered to be sufficiently important changes to merit an increased weight being applied to the earnings evidence in the latter year. All of these computational changes are discussed in conjunction with Exhibit XIV below.

Examination of the valuation records, and discussions with the Valuation Division provided some indication that attention is given in the determination of the unit value for a given year, to the unit value for the preceding year. It was impossible to discover *how much* attention is involved, but it was suggested that an *extreme* increase in the unit value is rarely introduced unless the evidence is overwhelming. Once again, it is impossible to decide at what point the evidence becomes "overwhelming." The following tabulation shows the various evidences of value for the two years being compared, together with the percentage change in the unit value over the same period. It should be noted that only the earnings evidence showed a decrease over the period. Of course, the earnings evidence for 1951 is not fully comparable with the earnings evidence for 1952, in view of the fact that very different computational techniques are involved. As a result, the four separate figures quoted for the earnings evidence are averaged and shown as separate figures for each of the two years.

Evidence of value	*1951 (1)*	*1952 (2)*	*Percentage change (2) + (1) — 100 (3)*
Historical cost new less depreciation	$203,190,949	$212,087,748	+4.379
Reproduction cost new less depreciation	332,221,517	356,221,898	+7.224
Simple average of four earnings figures	223,818,473	184,218,760	—17.693
Stock and Debt 1-year	81,325,117	97,252,205	+19.584
Stock and Debt 5-years	75,894,456	79,083,433	+4.202
Average percentage change in evidences			+3.539
Unit value	138,990,000	140,000,000	+0.727

A comparison of the earnings evidence of these two years is meaningful only if it is assumed that the figure for 1952 is designed, in part, to correct a computational error of the previous year. If the capitalization rate of 7% is correct for 1952, the capitalization rate of 5% (or 5½%) for 1951 must be incorrect, for it is inconceivable that the "true" capitalization rate could change this much in one year. It is nevertheless true that the stock and debt evidence shows a large enough increase completely to offset the correction in the earnings figure. Even if the two cost evidence figures are completely neglected on the grounds of their irrelevance, the increase in the unit value of only 0.727 percent is hard to explain on any other grounds than that the Valuation Division considers the earnings evidence after correction to be a much more important element of value than the stock and debt evidence. However, the suppositional element cannot be removed from this statement. Certainly it does appear that the method of working with "a reasonable increase over the previous year" has received some support in the valuation of this company for the two years under study.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XI

COMPUTATION OF "SYSTEM" VALUE

(California Only)

1952

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 7% Before Depreciation*		*Earnings Capitalized at 7% Before Depreciation and Income Tax*		*Horizontal Averages (unweighted)*
		1-Year Basis (1)	*5-Year Average Basis (2)*	*1-Year Basis (3)*	*5-Year Average Basis (4)*	*(5)*
1	(H) Historical cost new less depreciation	$212,087,748	$212,087,748	$212,087,748	$212,087,748	--------
2	(R) Reproduction cost new less depreciation	356,221,898	356,221,898	356,221,898	356,221,898	--------
3	(E) Capitalized earnings	170,944,102	179,685,703	196,573,274	189,671,959	--------
4	(S) Stock and debt	97,252,205	79,083,433	97,252,205	79,083,433	--------
5	Unweighted average	$209,126,500	$206,769,700	$215,533,800	$209,266,300	$210,174,100
6	Weighted average: H = 40%; R = 5%; E = 40%; S = 15%	$185,611,600	$186,383,000	$195,863,300	$190,377,500	$189,558,850
7	Weighted average: H = 35%; R = 5%; E = 40%; S = 20%	179,869,800	179,732,800	190,121,500	183,727,300	183,362,850
8	Weighted average: H = 33%; R = 1%; E = 33%; S = 33%	162,056,000	158,945,000	167,513,600 [a]	162,240,400	163,438,750
9	Weighted average: H = 19%; R = 1%; E = 40%; S = 40%	151,137,400	147,366,600	161,389,100	151,361,100	152,813,550
10	Weighted average: H = 5%; R = 5%; E = 45%; S = 45%	149,103,800	144,861,600	160,637,000	149,355,400	150,989,450
11	Vertical averages	$172,817,500	$170,676,450	$182,343,000	$174,388,000	**$175,056,250** [b]
12	System value for California 1951	**$139,017,720**				
13	System value for California 1952	**$140,000,000**				

NOTES: [a] Incorrect figure. Should be $170,513,600.
[b] This computed with corrected figure of note [a].

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

To Exhibit XI	*From*
Line 1	Exhibit XII, line 11, column 5
Line 2	Exhibit XII, line 11, column 6
Line 3, column 1	Exhibit XIV, line 22, column 1
Line 3, column 2	Exhibit XIV, line 22, column 5
Line 3, column 3	Exhibit XIV, line 22, column 3
Line 3, column 4	Exhibit XIV, line 22, column 7
Line 4, columns 1 and 3	Exhibit XVI, line 25, column 4
Line 4, columns 2 and 4	Exhibit XVI, line 37, column 2

Exhibits XII and XIII are, to all intents and purposes, the same as Exhibits II and III. Only one or two points need be added.

It will be recalled that no account was taken of the "additions and betterments" made during the year 1950 (to apply to the 1951 valuation) for purposes of computing the cost ratio factor and the condition percent. Exhibit XII, however, shows the additions and betterments for 1951 (to apply to the 1952 valuation) on line 7. The figure of $4,500,000 is purely an estimate, determined largely from a knowledge of the *net* additions to roadway and structures in California and the relationship between net and gross additions and betterments for the system as a whole. The only other item which requires mention is the relationship between line 2, column 1 and line 2, column 3, the latter being the so-called "Reproduction Cost New" of land. In the 1951 valuation the column 3 figure was lower than the column 1 figure; in the 1952 valuation the reverse is true. This is explained entirely by that fact that the Valuation Division made reappraisals of the operative land during this period.

To Exhibit XII	*From*
Line 2, column 1	Exhibit XIII, line 2, column 1
Line 3, column 1	Exhibit XIII, line 28, column 2
Line 4, column 1	Exhibit XIII, lines 33, 34, 35, 36 and 38, column 5
Line 5, column 1	Exhibit XIII, line 37, column 2
Line 6, column 1	Exhibit XIII, line 46, column 2
Lines 7 and 8, column 1	Exhibit XIII: lines 3 to 32, inclusive (except line 28), of column 2 plus line 1, column 5 plus line 40, column 5 plus line 41, column 5
Line 10, column 1	Exhibit XIII, line 45, column 2
Line 13, column 1	Exhibit XIII, line 43, column 1
Line 14, column 1	Exhibit XIII, line 44, column 2
Line 16, column 1	Exhibit XIII, line 47, column 6 minus line 47, column 4
Column 2	Interstate Commerce Commission and by physical appraisal
Column 4	Interstate Commerce Commission and by physical appraisal

The most important changes introduced into the valuation of 1952 are, as for most companies, contained in the earnings evidence as represented by Exhibits XIV and XV. The first complication which must be noted, however, does not really involve a change in the techniques of the Valuation Division but rather an attempt to account for peculiarities in the accounting system of the company and certain adjustments made for previous years. Since this complication helps to explain why the Valuation Division has found it desirable to alter its methods of capitalizing a net income figure, it will be valuable to develop this complication in some detail.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XII

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION
(California Only)

1952

	Type of Property	*Historical Cost New (1)*	*Ratio (2)*	*Reproduction Cost New (3)*	*Condition (Percentage) (4)*	*Historical Cost New Less Depreciation (5)*	*Reproduction Cost New Less Depreciation (6)*
1	Plant and equipment						
2	Land	$30,492,881	---	$31,160,000	100	$30,492,881	$31,160,000
3	Public improvements	2,423,200	2.04	4,943,328	74–71	1,793,168	3,509,763
4	Rolling equipment	100,958,483	1.78	179,706,100	71–66	71,680,523	118,606,026
5	Floating equipment	2,122,111	1.79	3,798,579	58	1,230,824	2,203,176
6	Retired property still in place	312,961	2.14	669,737	20	62,592	133,947
7	Additions and Betterments, 1951, gross	4,500,000	1.00	4,500,000	99	4,455,000	4,455,000
8	Other	132,384,564	2.04	270,064,511	74–71	97,964,577	191,745,803
9	Total plant and equipment	$273,194,200		$494,842,255		$207,679,565	$351,813,715
10	Materials and supplies	$4,897,981	1.00	$4,897,981	90	$4,408,183	$4,408,183
11	Total to here	$278,092,181		$499,740,236		$212,087,748	$356,221,898
12	Miscellaneous physical property						
13	Land	$5,302,353	---	$6,000,000	100	$5,302,353	$6,000,000
14	Other	1,302,759	2.14	2,787,904	71–68	924,959	1,895,775
15	Total miscellaneous physical property	$6,605,112		$8,787,904		$6,227,312	$7,895,775
16	Total owned, state-assessed	$284,697,293		$508,528,140		**$218,315,060**	**$364,117,673**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XIII

DETAIL OF THE COMPUTATION OF COST EVIDENCE: SUMMARY CONTROL

(California Only)

1952

	Items	Assessed by State: Land (1)	Assessed by State: Other (2)	Assessed by State: Total (3)	Licensed Motor Vehicles (4)	Other [a] (5)	Total Within Exterior Bounds of California (6)
1	Engineering	--------	--------	--------	--------	$3,066,546	$3,066,546
2	Land	$30,492,881	--------	$30,492,881	--------	--------	30,492,881
3	Right of way	--------	$9,983	9,983	--------	--------	9,983
4	Grading	--------	18,785,233	18,785,233	--------	--------	18,785,233
5	Tunnels and subways	--------	1,319,628	1,319,628	--------	--------	1,319,628
6	Bridges, trestles, culverts	--------	15,374,417	15,374,417	--------	--------	15,374,417
7	Ties	--------	9,727,469	9,727,469	--------	--------	9,727,469
8	Rails	--------	16,989,377	16,989,377	--------	--------	16,989,377
9	Other track material	--------	11,689,948	11,689,948	--------	--------	11,689,948
10	Ballast	--------	4,065,307	4,065,307	--------	--------	4,065,307
11	Track laying and surfacing	--------	8,233,834	8,233,834	--------	--------	8,233,834
12	Fences, snow sheds, signs	--------	329,862	329,862	--------	--------	329,862
13	Crossings and signs	--------	1,247,635	1,247,635	--------	--------	1,247,635
14	Station and office buildings	--------	13,830,500	13,830,500	--------	--------	13,830,500
15	Roadway buildings	--------	1,006,327	1,006,327	--------	--------	1,006,327
16	Water stations	--------	1,717,937	1,717,937	--------	--------	1,717,937
17	Fuel stations	--------	948,078	948,078	--------	--------	948,078
18	Shops and engine houses	--------	9,455,787	9,455,787	--------	--------	9,455,787
19	Storage warehouses	--------	37,771	37,771	--------	--------	37,771
20	Wharves and docks	--------	352,170	352,170	--------	--------	352,170
21	Communication system	--------	1,626,835	1,626,835	--------	--------	1,626,835
22	Signals and interlockers	--------	5,889,663	5,889,663	--------	--------	5,889,663
23	Power plants	--------	260,336	260,336	--------	--------	260,336
24	Power transmission systems	--------	240,014	240,014	--------	--------	240,014
25	Miscellaneous structures	--------	170,173	170,173	--------	--------	170,173
26	Roadway machines	--------	122,951	122,951	--------	--------	122,951
27	Roadway small tools	--------	32,296	32,296	--------	--------	32,296
28	Public improvements—construction	--------	2,423,200	2,423,200	--------	--------	2,423,200
29	Revenues and operating expenses during construction	--------	(121,801)	(121,801)	--------	--------	(121,801)
30	Other expenditures—road	--------	384	384	--------	--------	384
31	Shop machinery	--------	3,173,829	3,173,829	--------	--------	3,173,829
32	Power plant machinery	--------	785,260	785,260	--------	--------	785,260
33	Steam locomotives	--------	--------	--------	--------	13,625,630	13,625,630
34	Other locomotives	--------	--------	--------	--------	32,378,795	32,378,795
35	Freight—train cars	--------	--------	--------	--------	43,546,960	43,546,960
36	Passenger—train cars	--------	--------	--------	--------	10,215,197	10,215,197
37	Floating equipment	--------	2,122,111	2,122,111	--------	--------	2,122,111
38	Work equipment	--------	--------	--------	--------	1,191,901	1,191,901
39	Miscellaneous equipment	--------	--------	--------	$355,739	--------	355,739
40	General and office expense	--------	--------	--------	--------	952,678	952,678
41	Interest during construction	--------	--------	--------	--------	5,564,138	5,564,138
42	Subtotal	$30,492,881	$131,846,514	$162,339,395	$355,739	$110,541,845	$273,236,979
43	Land	$5,302,352	--------	$5,302,352	--------	--------	$5,302,352
44	Improvements	--------	$1,302,759	1,302,759	--------	--------	1,302,759
45	Materials and supplies	--------	4,897,981	4,897,981	--------	--------	4,897,981
46	Retired property still in place	--------	312,961	312,961	--------	--------	312,961
47	Total	**$35,795,233**	**$138,360,215**	**$174,155,448**	**$355,739**	**$110,541,845**	**$285,053,032**

NOTE: [a] This column includes property assessed by the State and listed separately by the company in its report to the Valuation Division.
SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1952.

The annual report of the Atchison, Topeka and Santa Fe Railway Company for the year ending December 31, 1951, shows net railway operating income for the year to be $71,613,110 [1] (see Exhibit XV, line 26, column 3). This income statement also shows an item for "Railway Tax Accruals" of $70,019,854 (See Exhibit XV, line 17, column 3). This tax item is deducted *before* the determination of net railway operating income. Page 4 of the stockholders' report, however, includes the following explanation:

"The item of tax accruals for 1951 was reduced by a tax credit amounting to $12,766,487 representing

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[1] The Atchison, Topeka and Santa Fe Railway Company, 57th Annual Report for the year ended December 31, 1951, p. 24.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XIV

COMPUTATION OF EARNINGS EVIDENCE

(System and California)

1952

	Items	*1951* *(1)*	*1950* *(2)*	*1949* *(3)*	*1948* *(4)*	*1947* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$55,837,053	$75,114,071	$58,685,671	$71,752,034	$57,338,704	--------	
3	Depreciation	27,207,412	24,115,751	22,174,647	20,958,926	21,819,441	--------	
4	Net before depreciation	83,044,465	99,229,822	80,860,318	92,710,960	79,158,145	$87,000,742	
5	Federal income tax	52,137,688	56,888,797	31,622,379	40,486,907	35,130,492	--------	
6	State income taxes	2,430,476	1,738,304	1,694,632	1,606,728	2,354,625	--------	
7	Net before depreciation and taxes	**$137,612,629**	**$157,856,923**	**$114,177,329**	**$134,804,595**	**$116,643,262**	**$132,218,948**	
8	Expectancy: 25 years							
9	Capitalization rates:							
10	(1) 7.000% interest + 1.581% depreciation = 8.581%.							
11	(2) 8.581% annuity + 3.762% taxes = 12.343%.							

12	Value computation:				
13	Period	*1-Year Basis, 1951*		*5-Year Average*	
14		*Before depreciation*	*Before depreciation and income taxes*	*Before depreciation*	*Before depreciation and income taxes*
15	Capitalization rates	8.581%	12.343%	8.581%	12.343%
16	Net income before depreciation	$83,044,465	$137,612,629	$87,000,742	$132,218,948
17	Capitalized income	$967,771,413	$1,114,904,229	$1,013,876,494	$1,071,205,930
18	Adjustments				
19	Working capital (—)	33,256,909	33,256,909	29,177,908	29,177,908
20	System earning value including motor vehicles	$934,514,504	$1,081,647,320	$984,698,586	$1,042,028,022
21	California portion including motor vehicles (apply 17.44%)	$162,979,329	$188,639,293	$171,731,433	$181,729,687
22	Plus California land reversions	8,170,152	8,170,152	8,170,152	8,170,152
		$171,149,481	$196,809,445	$179,901,585	$189,899,839
23	California earning value excluding motor vehicles (apply 99.88%)	**$170,944,102**	**$196,573,274**	**$179,685,703**	**$189,671,959**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

adjustment of Federal income and excess profits tax returns for the years 1942-43, and also by a credit of $3,009,570 representing adjustment of over-accruals of income and excess profits taxes in 1950.''

In effect, this means that, if we are purely interested in interpreting the income activities of the company for the calendar year 1951, the item called ''Railway Tax Accruals'' is understated by $15,776,057, the amount credited to the tax accruals account to adjust for overpayment and over-accruals of taxes in *previous* years. Since the railway tax accrual item is a deduction from income, this means that the figure for net railway operating income is *overstated* by $15,776,057.

Valuation for tax purposes must clearly be based upon the ''true'' income for the given year or series of years to the extent that the accounting system of the company permits this information to be obtained. The fact that in 1951 an accounting adjustment was made to take care of accounting ''errors'' of previous years does *not* mean that the *unit value* for tax purposes in 1952 should be adjusted to take care of ''errors'' in the *unit value* of previous years. The ''errors'' of past years must be corrected only insofar as the information of those years is instrumental in determining the value of this year (as in the case of the five-year-average computation). It is therefore necessary for the Valuation Division to *neglect* those adjustments which are incorporated into the income statement and which apply to the experience of previous years. This is done in the 1952 valuation by subtracting the amount of $15,776,057 from the reported net railway operating income of $71,613,110. (This is the same thing as adding the $15,776,057 to the railway tax accrual and subtracting the larger amount from net operating revenues shown in Exhibit XV, line 16, column 3). The result is $55,837,053—shown as ''Net Income'' in Exhibit XIV, line 2, column 1.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XV

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE SYSTEM

(Income Statement)

1952

	Items	*Amounts* *(1)*	*(2)*	*(3)*
1	Railway operating revenues:			
2	Freight	$466,225,449		
3	Passenger	52,578,289		
4	Mail	25,041,367		
5	Express	7,224,857		
6	Miscellaneous	19,511,746		
7	Total railway operating revenues		$570,581,708	
8	Railway operating expenses:			
9	Maintenance of way and structures	$92,820,726		
10	Maintenance of equipment	106,095,169		
11	Traffic	13,660,585		
12	Transportation—rail line	189,972,176		
13	Miscellaneous operations	11,868,973		
14	General expenses	11,872,695		
15	Total railway operating expenses		426,290,324	
16	Net operating revenues			$144,291,384
17	Railway tax accruals			70,019,854
18	Rents—equipment and facility—income:			
19	Rent from equipment (except cars)	$889,421		
20	Joint facility rent income	1,366,841		
			2,256,262	
21	Rents—expense:			
22	Hire of freight cars	$1,802,247		
23	Rent for other equipment	570,085		
24	Joint facility rents	2,542,350		
			4,914,682	
25	Net rents (expense)			2,658,420
26	Net railway operating income			**$71,613,110**

SOURCE: 57th Annual Report of The Atchison, Topeka and Santa Fe Railway Company, December 31, 1951.

This complication enters once more in the income calculations for the calendar year 1951. As explained above, the new techniques of the Valuation Division involve the capitalization of income *before* income taxes as well as before depreciation (with an adjustment of the capitalization rate). This means that income taxes have to be added back, once the proper net income figure has been determined. Federal income tax accruals for 1951 are shown in the annual report[2] as $36,361,631. This amount also appears in the more complete statement contained in the report of the company to the Interstate Commerce Commission. It is not separately listed in the income statement shown here as Exhibit XV. This amount, however, is the *adjusted* amount and, as such, represents the experience of previous years as well as the experience of calendar 1951. Since all of the adjustments noted above apply to the Federal Income Tax, it is necessary merely to add the $15,776,057 adjustment to the $36,361,631 tax accrual. The result is $52,137,688—shown in line 5, column 1 of Exhibit XIV.

Although the income taxes paid to the several states in which the Atchison, Topeka and Santa Fe Railway Company has an income tax liability are also part of the "Railway Tax Accruals" figure of line 17, Exhibit XV, no adjustments are involved and the amount is taken directly from the stockholders' report or from the report to the Interstate Commerce Commission.

Account must also be taken of these adjustments in the computation of the five-year-average earnings evidence. The $12,766,487 adjustment, however, applies to the income taxes of 1942-43. Since these years are not included in the current five-year period, this adjustment may be neglected. But the adjustment of $3,009,570 applies to the year 1950 and must be accounted for. The adjustment means that the Federal Income Tax Accrual for 1950 was too high by this amount and that, as a result, the net income of that year was understated. The net income of 1950 is shown in Exhibit IV, line 2, column 1 as $81,213,346. The

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[2] *Ibid.*, p. 45.

$3,009,570 is added to this to give $84,222,916. This would ordinarily be the net income figure which would appear in Exhibit XIV, line 2, column 2. But in this case *another* adjustment is necessary.

The Annual Report of the company for the year ended December 31, *1950,* indicates that the reported net income is overstated by $9,108,845 received as back mail pay and applicable to the years 1947, 1948 and 1949.[3] Subtracting this amount from the $84,222,916 shown above, we obtain the answer of $75,114,071—the amount used to represent the calendar year 1950 in the five-year-average calculations for the 1952 valuation. It is interesting to note that this adjustment *should* have been taken into account in the 1951 valuation, but it was apparently overlooked at that time.

The Valuation Division carries this retroactive mail pay back to the other years in the five-year-average calculations (Exhibit XIV, line 2, columns 3, 4 and 5) by adding to each of the previously reported net income figures the amount of $3,036,282. This is merely the $9,108,845 amount distributed evenly over each of the three years. Of course it is added rather than subtracted because the net income of those years was *under*stated by approximately this amount.

According to officials of the Valuation Division the sort of difficulty involved in making adjustments for accounting "errors" of past years provides one good reason for the new treatment of income taxes adopted (in part) in the 1952 valuation. It is true that the net income figures of 1942-43 and 1950 were overstated, and to the extent that the capitalized income figures entered into the unit value, this, too, was overstated. If, however, the Valuation Division in effect refuses to accept the figures for tax accruals (or tax *payments* for other companies) as indicated in the income statement of the Company and substitutes its own computations, this difficulty is avoided. Each year could then be looked upon as finally correct, at least as far as the tax (and depreciation) element is concerned. Of course it would still be necessary to show that the calculations of the Valuation Division were not only more correct than those of the company but in addition that they would correspond more closely with the calculations of a potential *buyer* of the company. Nevertheless, the Atchison, Topeka and Santa Fe Railway Company does show up the sort of difficulties which have induced the Valuation Division to experiment with the new tax calculations.

The amount shown for depreciation in line 3, column 1 of Exhibit XIV is part of the total railway operating expenses shown in Exhibit XV, line 15, column 2. As in the previous year, this is not shown separately in the income statement but is listed in the Annual Report of the company to the Interstate Commerce Commission for the year ended December 31, 1951.

All other items in Exhibit XIV have either been adequately discussed for the other companies or are suitably described in the tabular representation below.

To Exhibit XIV	*From*
Line 2, column 1	Exhibit XV, line 26, column 3 minus $15,776,057. See explanation above.
Line 3, column 1	Report of the company to the Interstate Commerce Commission or the Financial Statement of the company to the Valuation Division. The figure is part of the total operating expenses shown in line 15, column 2, of Exhibit XV. See explanation above.
Lines 5 and 6, column 1	Report of the company to the Interstate Commerce Commission. See explanation above.
Line 8	Computed from Interstate Commerce Commission data and by physical appraisal.
Lines 10 and 11	The "basic" rate of 7% is calculated with the data of Appendix D as background. The annuity factor is computed from the "basic" rate, and the tax factor is computed from Appendix C.
Line 18, column 1	Exhibit XV: (line 15, column 2 minus $27,207,412) divided by 12.
Line 20 (allocation percentage)	See explanation in conjunction with Exhibit XX.
Line 21, column 1	Exhibit XII, line 2, column 3 taken at 0.2622.
Line 22, column 1	See explanation in conjunction with Exhibit XX.

As for the other companies, the working capital adjustment (line 18 of Exhibit XIV) is computed by dividing the total operating expenses less depreciation by 12, on the assumption that this amount of working capital is necessary for the successful operations of the enterprise. The land reversion adjustment (line 22 of Exhibit XIV) is computed in the same way as in 1951. The only additional point that may be made is that the land reversion adjustment is based upon an interest rate of 5½%, while the basic rate of interest for the capitalization of income is 7%. It is usually the practice to employ the same rate in both calculations. No explanation is offered for this discrepancy.

The stock and debt evidence is constructed in an almost identical manner in the 1952 valuation as in the 1951 valuation, although the mechanics of adjustment are slightly different. The relevant computations are shown in Exhibits XVI to XIX, inclusive. Of these, Exhibit XVI is the most important, for it represents a collection of the data contained in the remaining exhibits. The first section of Exhibit XVI (labeled "Debts—Value Based on Sales") is taken from Exhibit XVII, which, in turn, is taken from Exhibit XVIII. The remaining sections of Exhibit XVI are based upon the information contained in the company's balance sheet, reproduced here as Exhibit XIX.

The only significant difference between Exhibit XVI and Exhibit VI (its counterpart for the 1951 valuation) is in the treatment of the nonoperative property, in the five-year-average computations. In 1951 the "Stock and Debt" values for the various years were averaged *before* the nonoperative property was taken out. The adjustment of $30,000,000 was then made to the five-year-average figure. In 1952 the nonoperative property was deducted before a system value figure was determined. So that the figures for each year in the five-year calculation would relate to the same type of property, each of the value figures for the four years preceding 1951 was reduced by $30,000,000, on the assumption that this measured the value of the nonoperative property in each of those years.

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[3] The Atchison, Topeka and Santa Fe Railway Company, 56th Annual Report, for the year ended December 31, 1950, pp. 4 and 20.

The figure for "Securities" shown in line 12, column 2 of Exhibit XVI is determined by the company

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XVI

COMPUTATION OF STOCK AND DEBT EVIDENCE
(System and California)

1952

	Items	*Amounts*			
		(1)	*(2)*	*(3)*	*(4)*
1	Debts				
2	Value based on sales:				
3	Capital stock		$514,018,061		
4	Bonds and equipment obligations		242,872,223		
				$756,890,284	
5	Value based on books:				
6	Current liabilities		$115,373,635		
7	Deferred liabilities		2,205,415		
8	Unadjusted credits		9,090,113		
				126,669,163	
9	Total debts				$883,559,447
10	Assets subtracted from debts				
11	Value based on sales:				
12	Securities		$91,763,292		
13	Value based on books:				
14	Miscellaneous physical property		25,000,000		
15	Current assets		175,358,192		
16	Working fund advances		470,881		
17	Other deferred assets		1,451,433		
18	Prepayments		481,834		
19	Other unadjusted debits		607,928		
20	Total assets subtracted from debts				$295,133,560
21	System stock and debt value including motor vehicles				$588,425,887
22	Less: Materials and supplies				55,393,403
					$533,032,484
23	California stock and debt value including motor vehicles (apply 17.44%)				$92,960,865
24	Add: California materials and supplies				4,408,183
					$97,369,048
25	California stock and debt value excluding motor vehicles (apply 99.88%)				**$97,252,205**
26	5-year average stock and debt value				
27	1947		$436,269,829		
28	1948		461,175,085		
29	1949		432,790,466		
30	1950		501,948,631		
31	1951		588,425,887		
32	Total			**$2,420,609,898**	
33	5-year average			$484,121,979	
34	Less: Materials and supplies—system			55,393,403	
				$428,728,576	
35	California stock and debt value including motor vehicles (apply 17.44%)	$74,770,264			
36	Plus: California materials and supplies	4,408,183			
		$79,178,447			
37	California stock and debt value excluding motor vehicles (apply 99.88%)	**$79,083,433**			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

in the same way as for the previous year. It will be recalled that this determination involves the use of the assessed values placed upon the property of subsidiary corporations in the various states in which the Atchison, Topeka and Santa Fe Railway Company has holdings. These estimates are submitted by the company to the Valuation Division in a separate report, the character of which was displayed in the explanation of the 1951 valuation. No further representation of this item is included here.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XVII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Value Based on Sales)

1952

	Issues	*Number of Shares Outstanding* *(1)*	*Par Value of Issue* *(2)*	*Average of Monthly High and Low Prices* *(3)*	*Computed Value* *(4)*
1	Common stock	4,854,120	--------	$78.375	$380,441,655
2	Preferred stock	2,483,456	--------	53.7865	133,576,406
3	Total to here				$514,018,061
4	General mortgage bonds—4—95	--------	$150,867,500	$121.6458	$183,523,977
5	Adjusted mortgage, annual—4—95	--------	30,500	113.6563	34,665
6	Adjusted mortgage, semi-annual—4—95	--------	48,762,000	113.6563	55,421,085
7	Equipment purchase contracts "A"—1.60—54	--------	998,248	Par	998,248
8	Equipment purchase contracts "B"—1.6475—54	--------	264,899	Par	264,899
9	Equipment purchase contracts "C"—1.495—54	--------	800,946	Par	800,946
10	Equipment purchase contracts "D"—1.50—55	--------	722,628	Par	722,628
11	Equipment purchase contracts "E"—1.6475	--------	1,105,775	Par	1,105,775
12	Total				**$756,890,284**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XVIII

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE: ONE-YEAR BASIS

(Monthly High and Low Security Prices)

1952

			New Common *(1)*	*New Preferred* *(2)*	*Gen. 4's 1995* *(3)*	*Stamped 4's 1995* *(4)*
1	January	Low	$75.250	$54.813	$128.000	$120.000
2		High	83.188	55.687	129.000	121.500
3	February	Low	81,500	55,125	128,000	121,375
4		High	88.875	57.938	129.875	121.625
5	March	Low	78.000	55.125	120.250	116.500
6		High	82.750	55.750	127.000	121.375
7	April	Low	78.875	54.812	119.000	112.500
8		High	83.500	55.500	121.250	114.000
9	May	Low	73.000	53.625	120.250	112.500
10		High	83.375	55.500	121.250	113.000
11	June	Low	73.312	53.000	116.500	110.250
12		High	78.750	54.625	120.375	112.000
13	July	Low	73.875	52.500	117.000	110.250
14		High	81.875	53.625	120.000	111.500
15	August	Low	75.750	51.750	119.000	110.875
16		High	82.000	55.000	123.500	112.375
17	September	Low	77.750	51.375	122.000	112.250
18		High	82.000	55.000	123.250	113.250
19	October	Low	68.750	51.250	119.125	112.750
20		High	81.000	52.875	123.375	113.000
21	November	Low	68.750	50.250	116.500	106.500
22		High	74,500	52,500	120,000	113,750
23	December	Low	74.125	50.250	116.250	106.500
24		High	79.250	53.000	118.750	108.125
25	Totals		$1,880.000	$1,290.875	$2,919.500	$2,727.750
26	Average of monthly high and low prices		$78.375	$53.7865	$121.6458	$113.6563

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XIX

DETAIL OF THE COMPUTATION OF STOCK AND DEBT EVIDENCE

(Balance Sheet)

1952

		(1)	(2)
1	**ASSETS**		
2	Road and equipment		
3	Road	$947,135,578	
4	Equipment	611,480,883	
5	Total road and equipment		$1,558,616,461
6	Less		
7	Accrued depreciation—road	$57,405,864	
8	Accrued depreciation—equipment	287,944,761	
9	Accrued amortization of defense projects—road	16,353,250	
10	Accrued amortization of defense projects—equipment	88,398,894	450,102,769
11	Investment in transportation property less recorded depreciation and amortization		1,108,513,692
12	Investments in terminal and collateral companies		35,328,153
13	Miscellaneous physical property	$23,959,161	
14	Less: accrued depreciation	4,522,259	
15	Investment in miscellaneous physical property less recorded depreciation		19,436,902
16	United States Government bonds		3,172,356
17	Other investments		801,324
18	Total to here		$1,167,252,427
19	Current assets		
20	Cash	$36,630,864	
21	United States Treasury notes	59,000,000	
22	United States Treasury notes—increment	456,600	
23	United States Treasury bills	30,174,192	
24	Other temporary cash investments	115,000	
25	Special deposits	306,150	
26	Loans and bills receivable	828	
27	Traffic and car service balances—Dr.	7,247,512	
28	Agents and conductors	5,049,679	
29	Miscellaneous accounts receivable	26,376,981	
30	Material and supplies	61,548,226	
31	Interest and dividends receivable	118,393	
32	Accrued accounts receivable	9,029,500	
33	Other current assets	852,493	
34	Total current assets		236,906,418
35	Deferred assets		
36	Working fund advances	470,881	
37	Other deferred assets	1,814,291	
38	Total deferred assets		2,285,172
39	Unadjusted debits		
40	Prepayments	481,834	
41	Other unadjusted debits	1,350,952	
42	Total unadjusted debits		1,832,786
43	Total assets		**$1,408,276,803**

		(1)	(2)
1	**LIABILITIES**		
2	Capital stock		
3	Capital stock outstanding	$366,878,800	
4	Premium on capital stock	717,800	
5	Total capital stock		$367,596,600
6	Funded debt		
7	Bonds	$199,660,000	
8	Equipment obligations	3,892,496	
9	Total outstanding		203,552,496
10	Current liabilities		
11	Audited accounts and wages payable	$28,735,877	
12	Miscellaneous accounts payable	7,254,860	
13	Interest matured unpaid	326,614	
14	Dividends matured unpaid	306,150	
15	Unmatured interest accrued	2,496,097	
16	Unmatured dividends declared	7,958,440	
17	Accrued accounts payable	8,352,111	
18	Taxes accrued	57,308,505	
19	Other current liabilities	2,634,981	
20	Total current liabilities		115,373,635
21	Deferred liabilities		2,756,769
22	Unadjusted credits		
23	Accrued depreciation—leased property	$16,215	
24	Other unadjusted credits	10,100,125	
25	Total unadjusted credits		10,116,340
26	Corporate surplus		
27	Additions to property through income and surplus	$83,121,014	
28	Funded debt retired through income and surplus	533,625	
29	Other corporate surplus	517,093	
30	Total corporate surplus		84,171,732
31	Profit and loss—balance		624,709,231
32	Total liabilities		**$1,408,276,803**

SOURCE: 57th Annual Report, The Atchison, Topeka and Santa Fe Railway Company, December 31, 1951.

To Exhibit XVI	*From*
Line 3, column 2	Exhibit XVII, line 3, column 4
Line 4, column 3	Exhibit XVII, line 12, column 4
Line 6, column 2	Exhibit XIX, line 20, column 2 (Liabilities)
Line 7, column 2	Exhibit XIX, line 21, column 2 (Liabilities) taken at 80%
Line 8, column 2	Exhibit XIX, line 24, column 1 (Liabilities) taken at 90%
Line 12, column 2	Special report of the company to the Valuation Division
Line 14, column 2	Estimated from company figure
Line 15, column 2	Exhibit XIX, line 34, column 2 minus line 30, column 1 (Assets)
Line 16, column 2	Exhibit XIX, line 36, column 1 (Assets)
Line 17, column 2	Exhibit XIX, line 37, column 1 (Assets) taken at 80%
Line 18, column 2	Exhibit XIX, line 40, column 1 (Assets)
Line 19, column 2	Exhibit XIX, line 41, column 1 (Assets) taken at 45%
Line 22, column 4	Exhibit XIX, line 30, column 1 (Assets) taken at 90% to represent market value
Line 23 (allocation percentage)	See explanation in conjunction with Exhibit XX
Line 24, column 4	Exhibit XII, line 10, column 1 taken at 90%
Line 25	See explanation in conjunction with Exhibit XX
Line 31, column 2	Exhibit XVI, line 21, column 4

To Exhibit XVII	*From*
Line 1, column 3	Exhibit XVIII, line 26, column 1 (should be 78.333)
Line 2, column 3	Exhibit XVIII, line 26, column 2
Line 4, column 3	Exhibit XVIII, line 26, column 3
Lines 5 and 6, column 3	Exhibit XVIII, line 26, column 4

A comparison of Exhibit XVII and Exhibit VII shows the average price of common stock over the year to have been $118.5938 in calendar 1950 and $78.375 in calendar 1951. Similarly, the average price of preferred stock was $107.0521 in 1950 and $53.7865 in 1951. This is accounted for by the fact that these issues were split two for one in August of 1951. This of course is shown by the fact that the number of shares outstanding is doubled in 1951 for both of the issues. For the five types of equipment purchase contracts shown in lines 7 to 11, inclusive, of Exhibit XVII, the par value was used in the computations. It will be recalled that, in the 1951 valuation, the Valuation Division utilized the estimates of the company for these items.

Exhibit XX is, in every sense, the 1952 equivalent of Exhibit X. It is based upon the formula of the National Association of Tax Administrators and this, in turn, makes use of data supplied by the Interstate Commerce Commission. The percentage shown in line 12, column 5 is transferred to Exhibit XIV, line 20, and to Exhibit XVI, lines 23 and 35.

In the determination of the percentage figure to represent taxable property, the figure in line 13, column 2 of Exhibit XX is taken from Exhibit XIII, line 47, column 6 and the figure in line 14, column 2 of Exhibit XX is taken from Exhibit XII, line 16, column 1. The

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY—EXHIBIT XX

COMPUTATION OF INTRASTATE ALLOCATION AND TAXABLE PROPERTY PERCENTAGES

1952

	Items	*The System* (1)	*California Portion* (2)	*Percentage in California* (3)	*Weight (Percentage)* (4)	*Weighted Percentage in California* (5)
1	Reproduction cost new less depreciation	$1,121,965	$203,191	18.11	45.38	8.22
2	Terminal Factor					
3	Tons originated	40,852	7,516	---	---	---
4	Tons terminated	38,714	9,773	---	---	---
5	Total	79,566	17,289	---	---	---
6	Total times 3	238,698	51,867	---	---	---
7	Tons received	16,389	4,203	---	---	---
8	Tons delivered	18,527	2,018	---	---	---
9	Total terminal factor	273,614	58,088	21.23	13.66	2.90
10	Line Haul Factor					
11	Traffic units	31,697,672	4,892,065	15.43	40.96	6.32
12	State allocation factor	--------	--------	---	100.00	17.44
13	Total historical costs		$285,053,032			
14	Total owned, state-assessed		$284,697,293			
15	Taxable percentage		99.88%			

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

figure of 99.88 percent is then transferred to Exhibit XIV, line 22, and to Exhibit XVI, lines 25 and 37.

This completes the analysis and explanation of the valuation of the Atchison, Topeka and Santa Fe Railway Company. From this discussion it should be abundantly clear that the Valuation Division of the State Board of Equalization makes use of valuation techniques that are considerably different in their detail at least for railroads than for the other major types of public utility enterprises. As is shown in Chapter XIII, these unique aspects of the valuation process are carried into the interstate allocation process as well.

THE SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—1951

The San Diego and Arizona Eastern Railway Company is a wholly owned subsidary of the Southern Pacific Company. As such, it exhibits quite different valuation problems than have been presented and described to this point. Up to and including the 1951 valuation, the Valuation Division treated this company as a ''branch line'' of the Southern Pacific system and did not compute a separate unit value for the San Diego and Arizona Eastern Railway Company. Certain calculations were made, to be sure, and these had the appearance of unit value calculations. However, these calculations had no particular significance, except that they showed the general area in which the unit value *would* have fallen if this company had been treated as a separate entity.

The ''branch line'' treatment of the San Diego and Arizona Eastern Railway Company means that all of the operating statistics and property records of the company are included with similar items for the Southern Pacific Company in the determination of the unit value of the latter enterprise. In the manufacture of the assessment rolls, of course, the property of each company must be listed separately, according to the physical location of the property. But this is a problem of intrastate allocation, rather than of unit value determination, and as such will be more fully discussed in Chapter XIII. Suffice it to say here that a mile of the track of the San Diego and Arizona Eastern Railway Company would be treated in the same manner as any mile of track of the Southern Pacific Company. If all of the allocated ''value'' figures were added up, the result would be the unit value of the Southern Pacific Company system and would include the contributions made to that unit value by the San Diego and Arizona Eastern Railway Company. As a matter of fact, it was the practice of the Valuation Division in these years to add up all of the allocated ''values'' for the San Diego and Arizona Eastern Railway Company itself and to insert this into the weighting sheet as the company's ''unit value.'' This is shown in line 11, column 1 of Exhibit I of the company. Particular note should be taken of the fact that *this figure bears no relationship to the evidences of value.* With every figure on the weighting sheet except the two figures for five-year-average earnings lower than this ''unit value'' it would be difficult indeed to justify such a low figure if it were computed in the usual way. But this figure is *not* derived from the data of Exhibits I to V, inclusive. It is the *result* of the intrastate allocation process, rather than the magnitude that is to be allocated.

In the years prior to 1951 it apparently made little difference whether the Valuation Division determined a separate unit value for the San Diego and Arizona Railway Company and allocated that value to the several code areas through which the road passed or whether it computed a joint unit value for the parent and the subsidiary and allocated the unit value over the entire system. By 1951, however, it *did* make a difference. This is indicated by the fact that the total of the ''value'' figures allocated to the San Diego and Arizona Eastern Railway Company is so much lower than the unit value that would have obtained had this been separately determined. The differences became even more extreme when, in 1951, the San Diego and Arizona Eastern Railway Company was permitted to discontinue its unprofitable passenger business. As a result, the Valuation Division began to change its techniques for this company in the 1952 valuation. The new techniques will be discussed below. Briefly, they involve much the same sort of calculation as for the other companies in our sample, so that the unit value of the San Diego and Arizona Eastern Railway Company now bears no direct relationship to that of the Southern Pacific Company.

As pointed out above, the Valuation Division did go through the motions of working up the several evidences of value for the San Diego and Arizona Eastern Railway Company in the 1951 valuation, in spite of the fact that these were not used in the valuation. The five exhibits of such computations are shown below without further comment. The absence of the stock and debt evidence is, of course, to be attributed to the fact that all of the corporate stock is held by the Southern Pacific Company and to the consequent lack of any market data for the issues. In all other respects, the relationship between the exhibits is the same as for the companies already discussed.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT I

COMPUTATION OF "SYSTEM" VALUE

1951

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 5%*		*Earnings Capitalized at 5½%*		*Horizontal Averages (unweighted)* (5)
		1-Year Basis (1)	*5-Year Average Basis* (2)	*1-Year Basis* (3)	*5-Year Average Basis* (4)	
1	(H) Historical cost new less depreciation	$8,751,848	$8,751,848	$8,751,848	$8,751,848	--------
2	(R) Reproduction cost new less depreciation	16,381,728	16,381,728	16,381,728	16,381,728	--------
3	(E) Capitalized earnings	6,848,753	2,616,929	6,542,171	2,483,869	--------
4	(S) Stock and debt	--------	--------	--------	--------	--------
5	Unweighted average	$10,660,800	$9,250,200	$10,558,600	$9,205,800	$9,918,850
6	Weighted average: H = 20%; R = 10%; E = 70%	$8,182,700	$5,220,400	$7,968,100	$5,127,300	$6,624,625
7	Weighted average: H = 10%; R = 10%; E = 80%	7,992,400	4,606,900	7,747,100	4,500,500	6,211,725
8	Weighted average: H = 5%; R = 5%; E = 90%	7,420,600	2,355,200	7,144,700	3,492,200	5,103,175
9	Vertical averages	$8,564,100	$5,358,200	$8,354,600	$5,581,400	**$6,964,600**
10	System value for 1950	**$3,013,320**				
11	System value for 1951	**$3,021,890**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT II

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION AND REPRODUCTION COST NEW, LESS DEPRECIATION

1951

	Type of Property	*Historical Cost New* (1)	*Ratio* (2)	*Reproduction Cost New* (3)	*Condition (Percentage)* (4)	*Historical Cost New Less Depreciation* (5)	*Reproduction Cost New Less Depreciation* (6)
1	Plant and equipment						
2	Land	$1,613,399	---	$1,179,000	100	$1,613,399	$1,179,000
3	Public improvements	66,892	2.23	149,169	75–73	50,169	108,893
4	Rolling equipment	635,063	1.60	1,016,101	52–50	330,233	508,051
5	Additions and betterments, 1950, gross	11,584	1.00	11,584	99	11,468	11,468
6	Other	8,916,433	2.23	19,883,646	75–73	6,687,325	14,515,062
7	Total plant and equipment	$11,243,371		$22,239,500		$8,692,594	$16,322,474
8	Materials and supplies	$74,067	1.00	$74,067	80	$59,254	$59,254
9	Total to here	$11,317,438		$22,313,567		$8,751,848	$16,381,728
10	Miscellaneous physical property						
11	Land	$11,765	---	$11,000	100	$11,765	$11,000
12	Total owned, state-assessed	$11,329,203		$22,324,567		**$8,763,613**	**$16,392,728**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT III

DETAIL OF THE COMPUTATION OF COST EVIDENCE

(Summary Control)

1951

	Items	*Assessed by State*			*Licensed Motor Vehicles* *(4)*	*Other*[a] *(5)*	*Total Within Exterior Bounds of California* *(6)*
		Land *(1)*	*Other* *(2)*	*Total* *(3)*			
1	Engineering	--------	--------	--------	--------	$361,386	$361,386
2	Land for transportation purposes	$1,625,164	--------	$1,625,164	--------	--------	1,625,164
3	Grading	--------	$3,200,433	3,200,433	--------	--------	3,200,433
4	Tunnels and subways	--------	1,092,720	1,092,720	--------	--------	1,092,720
5	Bridges, trestles, and culverts	--------	746,044	746,044	--------	--------	746,044
6	Ties	--------	460,467	460,467	--------	--------	460,467
7	Rails	--------	796,535	796,535	--------	--------	796,535
8	Other track material	--------	357,840	357,840	--------	--------	357,840
9	Ballast	--------	217,296	217,296	--------	--------	217,296
10	Tracklaying and surfacing	--------	328,359	328,359	--------	--------	328,359
11	Fences, snowsheds and signs	--------	36,941	36,941	--------	--------	36,941
12	Stations and office buildings	--------	132,692	132,692	--------	--------	132,692
13	Roadway buildings	--------	43,696	43,696	--------	--------	43,696
14	Water stations	--------	45,391	45,391	--------	--------	45,391
15	Fuel stations	--------	13,206	13,206	--------	--------	13,206
16	Shops and engine houses	--------	85,233	85,233	--------	--------	85,233
17	Telephone and telegraph lines	--------	51,324	51,324	--------	--------	51,324
18	Signals and interlockers	--------	6,986	6,986	--------	--------	6,986
19	Power transmission systems	--------	11,542	11,542	--------	--------	11,542
20	Miscellaneous structures	--------	8,787	8,787	--------	--------	8,787
21	Roadway machines	--------	33,090	33,090	--------	--------	33,090
22	Roadway small tools	--------	9,042	9,042	--------	--------	9,042
23	Public improvements—construction	--------	66,892	66,892	--------	--------	66,892
24	Shop machinery	--------	41,615	41,615	--------	--------	41,615
25	Steam locomotives	--------	--------	--------	--------	242,059	242,059
26	Other locomotives	--------	--------	--------	--------	257,135	257,135
27	Freight train cars	--------	--------	--------	--------	19,453	19,453
28	Passenger train cars	--------	--------	--------	--------	93,662	93,662
29	Work equipment	--------	--------	--------	--------	22,754	22,754
30	Miscellaneous equipment—licensed	--------	--------	--------	$11,551	--------	11,551
31	General expenditures	--------	--------	--------	--------	123,492	123,492
32	Interest during construction	--------	--------	--------	--------	723,900	723,900
33	Materials and supplies	--------	74,067	74,067	--------	--------	74,067
34	Grand total	**$1,625,164**	**$7,860,198**	**$9,485,362**	**$11,551**	**$1,843,841**	**$11,340,754**

NOTE: [a] This column includes property assessed by the State and listed separately by the company in its report to the Valuation Division.
SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1952.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT IV

COMPUTATION OF EARNINGS EVIDENCE

1951

	Items	*1950* *(1)*	*1949* *(2)*	*1948* *(3)*	*1947* *(4)*	*1946* *(5)*	*5-Year Average* *(6)*	*(7)*
1	Operating income							
2	Net income	$431,543	$167,994	$327,628	($90,845)	($287,786)	--------	
3	Depreciation	91,527	69,900	67,165	68,613	74,451	--------	
4	Net before depreciation	**$523,070**	**$237,894**	**$394,793**	**($22,232)**	**($213,335)**	**$184,038**	
5	Expectancy: 20 years							
6	Capitalization rates:							
7	(1) 5.000% + 3.024% annuity = 8.024%.							
8	(2) 5.500% + 2.868% annuity = 8.368%.							
9	Value computation:							
10	Period	*1-Year Basis, 1950*				*5-Year Average*		
11	Capitalization rate	8.024%		8.368%		8.024%		8.368%
12	Net income before depreciation	$523,070		$523,070		$184,038		$184,038
13	Capitalized income	$6,518,818		$6,250,836		$2,293,594		$2,199,307
14	Adjustments:							
15	Working capital (—)	$107,692		$107,692		$118,528		$118,528
16	Land (+)	444,483		405,576		444,483		405,576
17	California earning value including motor vehicles	$6,855,609		$6,548,720		$2,619,549		$2,486,355
18	California earning value excluding motor vehicles (apply 99.9%)	**$6,848,753**		**$6,542,171**		**$2,616,929**		**$2,483,869**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1951.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT V

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE

(Income Statement)

1951

	Items	*Amounts* *(1)*	*(2)*	*(3)*
1	Freight revenues	$2,271,647		
2	Passenger revenues	66,007		
3	Other rail transportation revenues	96,169		
4	Incidental revenues	30,870		
5	Total operating revenues		$2,464,693	
6	Maintenance of way and structures	$377,818		
7	Maintenance of equipment	178,936		
8	Traffic expense	35,031		
9	Rail line transportation expenses	674,007		
10	Miscellaneous operating expenses	20,251		
11	General expenses	97,784		
12	Total operating expenses		1,383,827	
13	Net operating revenues			$1,080,866
14	Railway tax accruals			485,636
15	Railway operating income			$595,230
16	Rent income		51,962	
17	Rent expense		215,649	
				(163,687)
18	Net railway operating income			**$431,543**

SOURCE: State Board of Equalization, Valuation Division—Financial Statement of the San Diego and Arizona Eastern Railway Company, December 31, 1950.

THE SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—1952

In spite of the fact that the Valuation Division computed a separate unit value for the San Diego and Arizona Eastern Railway Company in the 1952 valuation, this technique is by no means apparent from an examination of the weighting sheet for that year. In fact, the relationship between the evidences of value and the unit value appears to be even more remote in 1952 than in 1951. The lowest of the ''basic'' evidences of value is that for earnings capitalized before depreciation but after taxes at a 7% capitalization rate computed on the five-year-average basis. This is shown in line 3, column 2 of Exhibit VI as $4,096,523. The unit value finally chosen is only $3,585,000 (see line 13, column 1 of Exhibit VI). The difference between these two figures is $511,523, and the unit value is only 87.51 percent of this, the lowest of any of the evidences of value, weighted or unweighted. The highest figure on the weighting sheet is, as usual, that for reproduction cost new less depreciation. This is $17,279,293 (line 2 of Exhibit VI). This is $13,694,293 higher than the unit value. In other words, the unit value is only 20.7 percent of the figure for reproduction cost new less depreciation.

The only figure on the entire weighting sheet that is lower than the unit value figure for 1952 is the pseudo unit value figure for 1951 (line 12, column 1). The 1952 figure is $563,110 or 18.6 percent higher than the figure for the previous year. The only possible explanation, then, of the 1952 unit value for this company is that the Valuation Division did not feel justified in increasing the unit value by more than 19 percent in spite of the fact that the evidences of value available for this company suggested a much higher unit value. If it was the value of the previous year that played the leading role in the determination of the value of the present year, it appears that all of the calculations used to construct the so-called ''evidences'' of value were, once again, of little importance. Apparently the *real* differences between the techniques of 1951 and 1952 lie in the methods used to allocate the unit value over the relevant code areas.

In view of the fact that the ''unit value'' exhibits have little or no significance in the valuation process for 1952, these tables, too, are presented below without further comment.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT VI

COMPUTATION OF "SYSTEM" VALUE

1952

	Type of Value Evidence and System of Weighting	*Earnings Capitalized at 7% Before Depreciation*		*Earnings Capitalized at 7% Before Depreciation and Income Tax*		*Horizontal Averages (unweighted)*
		1-Year Basis (1)	*5-Year Average Basis (2)*	*1-Year Basis (3)*	*5-Year Average Basis (4)*	*(5)*
1	(H) Historical cost new less depreciation	$8,745,111	$8,745,111	$8,745,111	$8,745,111	--------
2	(R) Reproduction cost new less depreciation	17,279,293	17,279,293	17,279,293	17,279,293	--------
3	(E) Capitalized earnings	7,448,955	4,096,523	8,008,085	4,393,421	--------
4	(S) Stock and debt	--------	--------	--------	--------	--------
5	Unweighted average	$11,157,800	$10,040,300	$11,344,200	$10,139,300	$10,670,400
6	Weighted average: H = 40%; R = 5%; E = 55%	$8,458,900	$6,615,100	$8,766,400	$6,778,400	$7,654,700
7	Weighted average: H = 35%; R = 5%; E = 60%	8,394,200	6,382,700	8,729,700	6,560,900	7,516,875
8	Weighted average: H = 33%; R = 1%; E = 66%	7,975,000	5,762,400	8,344,000	5,958,400	7,009,950
9	Weighted average: H = 19%; R = 1%; E = 80%	7,793,600	5,111,600	8,240,900	5,349,100	6,623,800
10	Weighted average: H = 5%; R = 5%; E = 90%	8,005,400	4,988,200	8,508,600	5,225,400	6,364,075
11	Vertical averages	$8,630,800	$6,483,400	$8,989,000	$6,668,583	**$7,639,975**
12	System value for 1951	**$3,021,890**				
13	System value for 1952	**$3,585,000**				

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT VII

COMPUTATION OF HISTORICAL COST NEW, LESS DEPRECIATION, AND REPRODUCTION COST NEW, LESS DEPRECIATION

1952

	Type of Property	*Historical Cost New (1)*	*Ratio (2)*	*Reproduction Cost New (3)*	*Condition (Percentage) (4)*	*Historical Cost New Less Depreciation (5)*	*Reproduction Cost New Less Depreciation (6)*
1	Plant and equipment						
2	Land	$1,592,512	---	$1,254,420	100	$1,592,512	$1,254,420
3	Public improvements	66,892	2.39	159,872	74–72	49,500	115,108
4	Rolling equipment	570,655	1.28	730,438	80–75	456,524	547,829
5	Additions and betterments, 1950, gross	11,584	1.07	12,395	97	11,236	12,023
6	Additions and betterments, 1951, gross	8,036	1.00	8,036	99	7,956	7,956
7	Other	8,885,169	2.39	21,235,554	74–72	6,575,025	15,289,599
8	Total plant and equipment	$11,134,848		$23,400,715		$8,692,753	$17,226,935
9	Materials and supplies	$58,175	1.00	$58,175	90	$52,358	$52,358
10	Total to here	$11,193,023		$23,458,890		$8,745,111	$17,279,293
11	Miscellaneous physical property						
12	Land	$34,171	---	$85,000	100	$34,171	$85,000
13	Total owned, state-assessed	$11,227,194		$23,543,890		**$8,779,282**	**$17,364,293**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT VIII

DETAIL OF THE COMPUTATION OF COST EVIDENCE

(Summary Control)

1952

	Items	*Assessed by State*			*Licensed Motor Vehicles*	*Other* [a]	*Total Within Exterior Bounds of California*
		Land (1)	*Other (2)*	*Total (3)*	*(4)*	*(5)*	*(6)*
1	Engineering	--------	--------	--------	--------	$361,388	$361,388
2	Land for transportation purposes, miscellaneous physical property—land	$1,626,683	--------	$1,626,683	--------	--------	1,626,683
3	Grading	--------	$3,200,433	3,200,433	--------	--------	3,200,433
4	Tunnels and subways	--------	1,092,720	1,092,720	--------	--------	1,092,720
5	Bridges, trestles, and culverts	--------	746,044	746,044	--------	--------	746,044
6	Ties	--------	460,504	460,504	--------	--------	460,504
7	Rails	--------	796,591	796,591	--------	--------	796,591
8	Other track material	--------	358,497	358,497	--------	--------	358,497
9	Ballast	--------	217,309	217,309	--------	--------	217,309
10	Tracklaying and surfacing	--------	328,433	328,433	--------	--------	328,433
11	Fences, snowsheds and signs	--------	36,941	36,941	--------	--------	36,941
12	Station and office buildings	--------	132,692	132,692	--------	--------	132,692
13	Roadway buildings	--------	43,696	43,696	--------	--------	43,696
14	Water stations	--------	45,391	45,391	--------	--------	45,391
15	Fuel stations	--------	13,206	13,206	--------	--------	13,206
16	Shops and engine houses	--------	85,233	85,233	--------	--------	85,233
17	Communication systems	--------	51,324	51,324	--------	--------	51,324
18	Signals and interlockers	--------	6,986	6,986	--------	--------	6,986
19	Power transmission systems	--------	11,542	11,542	--------	--------	11,542
20	Miscellaneous structures	--------	8,787	8,787	--------	--------	8,787
21	Roadway machines	--------	36,152	36,152	--------	--------	36,152
22	Roadway small tools	--------	9,041	9,041	--------	--------	9,041
23	Public improvements—construction	--------	66,892	66,892	--------	--------	66,892
24	Shop machinery	--------	14,488	14,488	--------	--------	14,488
25	Steam locomotives	--------	--------	--------	--------	25,038	25,038
26	Other locomotives	--------	--------	--------	--------	468,152	468,152
27	Freight train cars	--------	--------	--------	--------	17,859	17,859
28	Passenger train cars	--------	--------	--------	--------	50,153	50,153
29	Work equipment—rolling	--------	--------	--------	--------	9,453	9,453
30	Miscellaneous equipment—licensed	--------	--------	--------	$11,551	--------	11,551
31	General expenditures	--------	--------	--------	--------	123,492	123,492
32	Interest during construction	--------	--------	--------	--------	723,900	723,900
33	Materials and supplies	--------	58,175	58,175	--------	--------	58,175
34	Grand total	**$1,626,683**	**$7,821,077**	**$9,447,760**	**$11,551**	**$1,779,435**	**$11,238,746**

NOTE: [a] This column includes property assessed by the State and listed separately by the company in its report to the Valuation Division.
SOURCE: State Board of Equalization, Valuation Division—Summary Control, 1952.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT IX

COMPUTATION OF EARNINGS EVIDENCE

1952

	Items	1951 (1)	1950 (2)	1949 (3)	1948 (4)	1947 (5)	5-Year Average (6)	(7)
1	Operating income							
2	Net income	$618,615	$431,543	$167,994	$327,628	($90,845)	--------	
3	Depreciation	66,780	91,527	69,900	67,165	68,613	--------	
4	Net before depreciation	685,395	523,070	237,894	394,793	(22,232)	$363,784	
5	Federal income tax	323,554	327,617	143,498	87,458	--------	--------	
6	State income tax	32,728	15,038	15,688	--------	21	--------	
7	Net before depreciation and income tax	**$1,041,677**	**$865,725**	**$397,080**	**$482,251**	**($22,211)**	**$552,904**	
8	Expectancy: 20 years							
9	Capitalization rates							
10	(1) 7.000% interest + 2.439% depreciation = 9.439%. ((1) 7.250% + 2.374% = 9.624%).							
11	(2) 9.439% annuity + 4.122% taxes = 13.561%.							

		1-Year Basis, 1951		5-Year Average	
12	Value computation				
13	Period	Before depreciation	Before depreciation and income taxes	Before depreciation	Before depreciation and income taxes
14	Capitalization rate	.09624%	.13561%	.09624%	.13561%
15	Net income	$685,395	$1,041,677	$363,784	$552,904
16	Capitalized income	$7,121,727	$7,681,417	$3,779,967	$4,077,162
17	Adjustments				
18	Working capital (—)	$95,206	$95,206	$109,233	$109,233
19	Land reversion (+)	429,890	429,890	429,890	429,890
20	California earning value including motor vehicles	$7,456,411	$8,016,101	$4,100,624	$4,397,819
21	California earning value excluding motor vehicles (apply 99.9%)	**$7,448,955**	**$8,008,085**	**$4,096,523**	**$4,393,421**

SOURCE: State Board of Equalization, Valuation Division, Work Sheets for 1952.

SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY—EXHIBIT X

DETAIL OF THE COMPUTATION OF EARNINGS EVIDENCE

(Income Statement)

1952

	Items	Amounts (1)	(2)	(3)
1	Freight revenues	$2,394,729		
2	Passenger revenues	2,694		
3	Other rail transportation revenues	62,364		
4	Incidental revenues	25,217		
5	Total operating revenues		$2,485,004	
6	Maintenance of way and structures	$346,202		
7	Maintenance of equipment	169,723		
8	Traffic	26,038		
9	Rail line transportation expenses	570,454		
10	Miscellaneous operating expenses	1,335		
11	General expenses	95,496		
12	Total operating expenses		1,209,248	
13	Net operating revenues			$1,275,756
14	Railway tax accruals			494,148
15	Railway operating income			$781,608
16	Rent income		51,478	
17	Rent expense		214,471	
				(162,993)
18	Net railway operating income			**$618,615**

SOURCE: State Board of Equalization, Valuation Division—Financial Statement of San Diego and Arizona Eastern Railway Company, December 31, 1951.

CHAPTER XIII

THE INTRASTATE ALLOCATION OF UNIT VALUE

THE PROBLEM AND THE METHOD

Previous chapters have been concerned with the *determination* of the unit values of the operative property of the six companies which constitute the sample for purposes of the present study. The present chapter is concerned with the problem of what the State Board of Equalization *does* with these unit values once they have been determined. In other words, the present chapter represents an attempt to fill in the gap between the unit value of a given company and the final assessed value figures which become part of the assessment rolls.

Of all of the steps in the lengthy process of determining the assessed values of public utility enterprises in the State of California the most difficult to describe in a report of this kind is that which is concerned with the techniques by which the unit value is allocated to the many taxing jurisdictions within the State. This difficulty comes in part from the complexity of the jurisdictional pattern in the State and in part from the mass of data that must be handled in the allocation process. In addition, it is difficult to generalize the processes currently followed by the Valuation Division in view of the fact that these processes are often highly subjective in character and rely heavily upon rule-of-thumb decisions.

It was pointed out in Chapter IV that the Valuation Division of the State Board of Equalization is required to allocate the unit value of the assessee in two different directions, the first representing a geographical allocation to the code areas (''uniform rate areas'') in which the property of the company is located, and the second representing a functional allocation to the various types of property owned or used by the company (land, improvements, and personal property). It was also pointed out in Chapter IV that these distinctions are artificial distinctions, although they are clearly required by the prevailing structure of the California property tax and by the governing sections in the California Constitution and the Revenue and Taxation Code. A clear understanding of the reasoning behind this last point is essential to an appreciation of the difficulties which face the Valuation Division in this intrastate allocation step.

As of February, 1952, there were 4,705 active taxing jurisdictions, arranged by the State Board of Equalization into 9,998 code areas, in the State of California. Table I shows the number of counties and code areas which contained, for the 1952 assessment, the property of the six public utility enterprises in the present sample. The data of Table I testify to the impossibility of describing in detail the allocation of the unit value of any one of the six companies, even the smallest and least complex, and show the need for a further analytical sampling.

TABLE I

NUMBER OF COUNTIES AND CODE AREAS CONTAINING PROPERTY OF THE SIX SAMPLE COMPANIES FOR THE 1952 ASSESSMENT

Company	*Counties*	*Code areas*
Pacific Telephone and Telegraph Company	56	6,743
Kern Mutual Telephone Company	4	33
Pacific Gas and Electric Company	48	5,123
San Diego Gas and Electric Company	2	293
Atchison, Topeka and Santa Fe Railway Company	20	663
San Diego and Arizona Eastern Railway Company	2	49

SOURCE: State of California Board of Equalization, Valuation Division, work sheets.

The choice of only six companies out of a total of over 200 companies assessed by the State Board of Equalization represents the first analytical sampling. The basis on which this sample was made was described in detail in Chapter IX. Because of the multiplicity of code areas for each of these six companies, however, a further sampling was required. The new sampling techniques were applied at two levels of analysis. In the first place, a series of representative *counties* was selected for each of the six companies. One phase of the explanation is offered on this county-wide basis. The detail of this explanation consists of a list of *all* of the applicable code areas within the selected counties, together with the total assessment and ''market value'' for each class of property in each code area. It is the purpose of this analysis to show the ratio between the assessed value figures and the so-called ''market value'' figures for each class of property, on the temporary assumption that the ''market value'' figures are correct.

In the second place, a series of representative *code areas* was selected for each of the selected counties. The detail of this analysis consists of a list of each item of property owned or used by the assessee in each of the selected code areas, together with the ''market value'' and the reproduction cost new less depreciation associated with each item. It is the purpose of this analysis to show the relationship between the total market value of a given company (the ''unit value'') and the ''market values'' of the items of property that comprise the company and the methods by which the Valuation Division arrives at this relationship. This is, in effect, a testing of the earlier assumption regarding the accuracy of the ''market value'' figures.

The sequence of the analysis in the present explanation is the reverse of that involved in the Valuation Division's calculations. The Division starts with the unit value (and with certain other figures that are not part of the unit value) and ends up with the assessed value figures. For reasons which will be obvious in the explanation the present discussion starts with the assessed value figures and works back to the unit value.

The samples of counties and code areas selected for this presentation cannot be justified in any clear, quantitative way. The following points were, however, taken into consideration in the selection:

1. It was felt to be necessary to give representation to counties that contain heavy concentrations of population and to those that are predominantly rural in character. Unless the allocation techniques were perfectly uniform throughout the State, it is quite possible that the allocation favor the urban over the rural or vice versa. Where possible, the group of counties chosen for any one company shows both of these population characteristics. The same thing is true for code areas, so that, within certain counties, some code areas were chosen because of their predominantly urban characteristics and others because of their predominantly rural characteristics.

2. An attempt was made to choose the counties and code areas in such a way as to include the various *types* of property for each company. For example, for gas and electric companies an attempt was made to select a group of counties and code areas that would show the distinction between the generating, transmission, and distribution systems. For telephone and telegraph companies the attempt was to distinguish between toll and exchange systems and such things as central office equipment and other fixed structures. For railroads the main distinction attempted was between track and associated property on the one hand, and shop equipment, stations, and the like on the other hand. It is clear that these are important distinctions to draw, for if the allocation formula of the Valuation Division should tend to emphasize the distribution system of a gas and electric company over the transmission system, the allocation of the unit value would, in effect, favor those counties containing heavy concentrations of distribution equipment at the expense of those counties containing heavy concentrations of transmission equipment.

3. For the same reasons, it was also necessary to choose the code area sample in such a way that distinctions could be drawn between the various classes of property listed in the Revenue and Taxation Code. In some code areas a given company's property holdings may consist entirely of personal property. In others, it may consist primarily of improvements. In still others, the largest holdings may be of land. An allocation system that generally favored one of these property classes over another would have the effect of favoring one taxing jurisdiction over another. No attempt was made to apply this criterion to the selection of *counties*, however.

4. It was also recognized that it would be desirable to show the effects of the allocation process on as *many* counties as possible. As a result, it was desirable to choose *different* counties for each company. This was not always possible, however, in view of the fact that some of the smaller companies in the sample operate in only two or three counties, and in view of the other factors that it was necessary to consider in the choice of sample counties.

5. In spite of the advantages to the wide coverage involved in the selection of different counties for each company, it was considered to be necessary to have some standard of comparison for the companies. This resulted in the selection of Alameda County as the ''pilot county'' for each of the three major companies—the Pacific Telephone and Telegraph Company, the Pacific Gas and Electric Company, and the Atchison, Topeka and Santa Fe Railway Company. None of the other companies has taxable property in Alameda County.

6. Finally, it was necessary to consider the difficulties of working with the data and the impossibility of reproducing masses of factual material. The considerations of these mechanical difficulties resulted, most importantly, in the exclusion of Los Angeles County from the sample. In addition, however, it was necessary to exclude certain large and important code areas because other large and important code areas had already been selected in the same county.

Table II shows the counties and the number of code areas in each county selected for each of the public utilities in the sample.[1] *For purposes of the report,* the factual material is developed for the ''pilot'' company only, the Pacific Telephone and Telegraph Company, although the other five companies were sampled as indicated in Table II *for purposes of the investigation.* Once again, this restriction was necessitated by the sheer bulk of the factual material. Some comments are made in the text about the findings in those companies that are not specifically illustrated in the present chapter. The assessed values associated with each company in the sample are shown by counties and for the two years 1951 and 1952 in Appendix C.

The details of the intrastate allocation of public utility property values are presented for the 1952 assessment only, once again because of the impossibility of reproducing all of the data that would be involved in a two-year analysis. In one sense this restriction is not particularly unfortunate, for there have been no basic changes in the technique over the two-year period which are comparable in importance to those involved in the computation of the unit value itself. In another sense, however, this is an unfortunate restriction. As is shown later, the Valuation Division makes use of the detail of one year as the starting point for the calculations of the following year. An attempt is made to explain this technique, although it is not factually illustrated.

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[1] A listing of the code areas by the code numbers which are used to describe them would be of no great consequence unless it were used in conjunction with the maps which show the boundaries of the code areas. It is clearly impossible to reproduce in this report the complete set of maps for the code areas chosen. Nevertheless, the official code area numbers are shown for identification purposes in Table V below.

TABLE II

SAMPLE COUNTIES AND THE NUMBER OF SAMPLED CODE AREAS FOR SIX PUBLIC UTILITIES ENTERPRISES IN CALIFORNIA

Company	*County*	*Number of code areas in sample*
Pacific Telephone and Telegraph Company	Alameda	9
	Lassen	3
	Sutter	5
	Tehama	3
	Tulare	7
	Ventura	9
Total		36
Kern Mutual Telephone Company	Kern	5
	San Luis Obispo	1
	Santa Barbara	2
	Ventura	1
Total		9
Pacific Gas and Electric Company	Alameda	10
	El Dorado	3
	Kings	4
	Monterey	7
	San Francisco	1
	Shasta	10
Total		35
San Diego Gas and Electric Company	Orange	3
	San Diego	10
Total		13
Atchison, Topeka and Santa Fe Railway Company	Alameda	2
	Contra Costa	5
	Fresno	7
	Riverside	5
	San Bernardino	8
Total		27
San Diego and Arizona Eastern Railway Company	Imperial	4
	San Diego	8
Total		12

THE ALLOCATION OF THE UNIT VALUE OF THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY

It is the claim of the Valuation Division of the State Board of Equalization that the public utility property in California is assessed at 50 percent of its "true" or "market" value. Before examining the allocation process in detail, we might test the validity of this claim for the Pacific Telephone and Telegraph Company in a very rough and admittedly inconclusive way. This examination will help to place the allocation of the unit value in its proper context in the assessment process.

Table III shows the total assesed value of the California property (excluding solvent credits) of the Pacific Telephone and Telegraph Company as of the first Monday in March, 1952, to be $412,653,980. In Chapter IX the unit value of the operative property of this company was shown to be $820,000,000. The reproduction cost new less depreciation of the entire operative property of the company in California was $1,213,112,426. The ratio of the unit value of the operative property to the total reproduction cost new less depreciation of the operative property was thus approximately 0.676. To the unit value must be added the market value of the nonoperative property. This figure is not shown directly on the work sheets of the Valuation Division and is given as only a rough estimate for present purposes. The reproduction cost new less depreciation of the nonoperative property *is* shown in the division's work sheets, however. This figure is $1,112,854. If it is assumed that the ratio of market value to reproduction cost new less depreciation is the same for nonoperative property as for operative property, the market value of the nonoperative property would be $752,289 (apply the 0.676 ratio to the reproduction cost new less depreciation of the nonoperative property). This gives a total of $820,752,289 for the market value of both operative and nonoperative property. To this figure must be added the estimated value of the property which the Pacific Telephone and Telegraph Company leased from other individuals and other companies.[2] In the 1952 assessment the Valuation Division estimated the value of such leased property to be $5,700,000. The total market value of all taxable property (except money) owned or used by the Pacific Telephone and Telegraph Company now appears as $826,452,289. If this were assessed at 50 percent of its market value, the assessed value of the total would obviously have to be $413,226,144. To this assessed value should be added the *total* amount of money which it was estimated the company held on the tax date (on the assumption that money is assessed at 100 percent of its "value"). Computed in this rough way, the final assessed value for this company *should* have been $413,415,144. As mentioned above, the assessed value actually *was* $412,653,980, or only $761,064 less than the figure obtained by making rough adjustments to 50 percent of the unit value. Certainly the difference could be accounted for by the roughness of the above calculations. So far, the allegations of the State Board of Equalization with respect to the assessment ratio for public utility property appear to be supported.

It is clear that this is not the complete answer, however. Even if it is agreed that the rough calculations shown above for the nonoperative property are correct, and even if the estimates for the value of leased property and the amount of money held by the company are accepted, the question must still be raised as to whether the reported unit value of the operative property is the true market value figure of this company. Previous chapters were concerned with the method used by the Valuation Division to determine this $820,000,000 figure. The question of the *accuracy* of these methods (and consequently of the accuracy of the unit value itself) is briefly treated in Chapter XIV. But at the

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[2] This value is, of course, assessed to the lessor rather than to the lessee, so that this figure would not finally appear as part of the tax base of the Pacific Telephone and Telegraph Company. The value of leased property is, however, allocated along with the other property and appears in Table III as part of the Pacific Telephone and Telegraph Company assessment.

TABLE III

TOTAL ASSESSED VALUE OF THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY BY COUNTY AND BY TYPE OF PROPERTY[a]

1951 and 1952

		Land		*Improvements*		*Personal property*		*Total*	
	Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
1	Alameda [b]	$461,600	$461,000	$18,833,590	$19,479,770	$19,717,980	$21,805,870	$39,013,170	$41,746,640
2	Alpine	--------	--------	--------	--------	--------	--------	--------	--------
3	Amador	1,250	1,250	50,380	51,450	128,390	141,620	180,020	194,320
4	Butte	10,100	10,100	170,190	188,190	2,124,520	2,135,390	2,304,810	2,333,680
5	Calaveras	90	120	7,940	9,230	185,830	202,800	193,860	212,150
6	Colusa	--------	--------	--------	--------	68,990	68,480	68,990	68,480
7	Contra Costa	60,740	94,460	2,355,300	2,595,750	5,662,060	6,400,690	8,078,100	9,090,900
8	Del Norte	--------	--------	--------	--------	16,840	16,760	16,840	16,760
9	El Dorado	3,990	3,990	60,590	63,910	304,750	357,890	369,330	425,790
10	Fresno	61,450	62,200	3,216,160	3,419,650	5,121,090	5,771,100	8,398,700	9,252,950
11	Glenn	--------	--------	--------	--------	405,910	476,460	405,910	476,460
12	Humboldt	12,430	16,350	425,670	526,540	1,174,250	1,465,590	1,612,350	2,008,480
13	Imperial	17,700	17,550	601,280	609,820	1,322,340	1,449,990	1,941,320	2,077,360
14	Inyo	--------	--------	15,320	15,560	66,430	56,230	81,750	71,790
15	Kern	48,030	51,060	2,132,080	2,370,990	4,532,480	5,141,650	6,712,590	7,563,700
16	Kings	6,130	6,120	449,420	461,030	671,830	725,140	1,127,380	1,192,290
17	Lake	4,950	6,300	154,430	159,260	375,740	396,670	535,120	562,230
18	Lassen [b]	50	50	129,470	129,470	161,040	160,400	290,560	289,920
19	Los Angeles	1,780,210	1,871,840	60,895,750	63,819,810	80,586,490	90,292,990	143,262,450	155,984,640
20	Madera	1,180	1,220	91,050	122,210	883,350	971,990	975,580	1,095,420
21	Marin	29,600	46,400	1,314,500	1,855,500	2,285,080	2,500,480	3,629,180	4,402,380
22	Mariposa	--------	--------	--------	--------	91,880	92,400	91,880	92,400
23	Mendocino	14,220	17,250	326,600	393,540	714,440	870,970	1,055,260	1,281,760
24	Merced	13,120	21,340	398,210	468,940	1,333,290	1,550,330	1,744,620	2,040,610
25	Modoc	30	30	161,950	161,950	118,910	118,820	280,890	280,800
26	Mono	--------	--------	--------	--------	16,000	--------	16,000	--------
27	Monterey	55,400	59,790	1,318,000	1,464,100	3,007,650	3,265,220	4,381,050	4,789,110
28	Napa	14,700	20,700	626,500	678,290	905,130	1,010,250	1,546,330	1,709,240
29	Nevada	2,900	3,160	121,670	123,080	525,500	557,500	650,070	683,740
30	Orange	85,680	95,060	2,024,250	2,270,260	4,235,150	4,770,660	6,345,080	7,135,980
31	Placer	11,640	14,010	423,310	448,710	1,123,330	1,233,500	1,558,280	1,696,220
32	Plumas	1,750	1,750	57,530	58,320	177,130	190,710	236,410	250,780
33	Riverside	57,890	57,890	1,451,940	1,526,810	3,922,560	4,222,260	5,432,390	5,806,960
34	Sacramento	259,850	262,850	5,381,760	5,898,490	6,140,350	7,174,340	11,781,960	13,335,680
35	San Benito	4,200	4,200	44,900	45,950	267,110	290,250	316,210	340,400
36	San Bernardino	17,690	17,690	1,170,810	1,226,300	2,687,630	2,767,010	3,876,130	4,011,000
37	San Diego	206,010	232,380	5,758,260	6,365,300	10,622,480	12,426,320	16,586,750	19,024,000
38	San Francisco	815,680	815,680	22,533,500	22,827,630	21,212,520	23,480,930	44,561,700	47,124,240
39	San Joaquin	78,260	79,760	1,908,540	2,191,020	4,290,980	4,496,460	6,277,780	6,767,240
40	San Luis Obispo	9,020	8,100	309,480	518,310	1,817,290	1,937,090	2,135,790	2,463,500
41	San Mateo	163,860	163,860	3,370,930	3,682,500	6,173,990	6,925,990	9,708,780	10,772,350
42	Santa Barbara	8,200	8,200	192,960	343,570	445,120	398,630	646,280	750,400
43	Santa Clara	131,740	156,680	4,839,010	5,548,740	7,056,080	7,723,870	12,026,830	13,429,290
44	Santa Cruz	51,620	53,370	963,310	1,005,290	1,714,910	1,862,050	2,729,840	2,920,710
45	Shasta	24,850	37,280	651,640	678,340	1,122,990	1,419,140	1,799,480	2,134,760
46	Sierra	40	40	58,740	58,740	119,340	118,630	178,120	177,410
47	Siskiyou	6,620	6,620	456,620	456,590	1,256,200	1,284,420	1,719,440	1,747,630
48	Solano	7,340	10,270	858,390	923,900	1,945,470	2,264,580	2,811,200	3,198,750
49	Sonoma	27,270	42,980	808,580	1,119,520	2,425,850	2,845,730	3,261,700	4,008,230
50	Stanislaus	41,370	51,690	1,278,910	1,339,650	2,304,220	3,029,910	3,624,500	4,421,250
51	Sutter [b]	420	420	33,930	34,150	1,075,880	967,280	1,110,230	1,001,850
52	Tehama [b]	2,390	2,400	36,690	36,690	976,490	927,520	1,015,570	966,610
53	Trinity	--------	--------	--------	--------	21,350	21,330	21,350	21,330
54	Tulare [b]	18,860	18,860	1,086,360	1,137,850	2,611,740	2,740,410	3,716,960	3,897,120
55	Tuolumne	8,920	9,000	116,480	121,730	232,850	257,880	358,250	388,610
56	Ventura [b]	23,030	23,030	571,600	578,720	1,597,750	1,683,560	2,192,380	2,285,310
57	Yolo	8,680	9,770	290,560	295,630	888,330	962,310	1,187,570	1,267,710
58	Yuba	21,150	21,150	483,090	488,520	853,730	854,990	1,357,970	1,364,660
59	**Totals**	**$4,693,900**	**$4,977,270**	**$151,018,130**	**$160,395,270**	**$221,827,010**	**$247,281,440**	**$377,539,040**	**$412,653,980**

NOTES: [a] Excluding solvent credits.
[b] Counties selected for detailed analysis. See Table IV.

SOURCE: State Board of Equalization, Valuation Division.

moment it must be made clear that any debate regarding the ratio of assessed value to market value *at the level of the company as a whole* must be concerned with the accuracy of the unit value only, for the quick calculations shown above do indicate something very close to a 50 percent assessment ratio if the *given* unit value is accepted.[3]

An investigation of the unit value is not a sufficient investigation, although it is clearly a necessary step in the determination of the assessment ratio. Even if it is assumed, for purposes of the present chapter, that the unit value is correctly computed, it may still be that the methods of *distributing* the 50 percent assessment over the 56 counties and the 6,743 code areas which contain the taxable property of the Pacific Telephone and Telegraph Company are faulty and produce inequitable results. In other words, it may be that in some counties the ratio is only 40 percent, while in other counties the ratio is closer to 60 percent, even though the state-wide ratio is 50 percent. *Thus, the distributive problem may not be important in terms of the equalization on a state-wide basis of assessments as between public utility property on the one hand and common property on the other. But it is clearly of great importance in terms of the equalization of intercounty assessments.* It is this distributive problem that must now be explored, in this chapter by decsribing as fully as possible the techniques used by the Valuation Division (with just enough critical comment to assist in the explanation), and in Chapter XIV by a more specific critique of these techniques.

The first step in the analysis of the techniques of intrastate allocation involves a breakdown of the total assessment figures to show the amount of assessed valuation allocated to each county. Table III shows this breakdown for the years 1951 and 1952 and maintains the distinctions between land, improvements, and personal property. The data applicable to each of the two years are shown in Table III, although only the 1952 figures are carried forward in the subsequent discussion. The company neither owned nor used property in Alpine County in either of the two years. Mono County shows an assessment for 1951 but not for 1952, indicating the sale of the company's property in this county in 1951.

Table IV is the beginning of the explanation of the *source* of the assessment figures which appear in Table III. All of the code areas containing the property of the Pacific Telephone and Telegraph Company are identified by number for the six counties sampled. Here, too, the distinction between land, improvements, and personal property is maintained. The assessed value figures shown in the first four columns of Table IV are merely ''breakdown'' figures of the county totals which appear in Table III. Thus, the total assessed value of the land in the 230 code areas of Alameda County total $461,000, the figure shown for the county total in Table III.

Associated with the assessed value figures for each code area and for each type of property are the so-called ''market value'' figures. The term ''market value'' is somewhat unfortunate and is used here only because of its proven popularity. In the first instance, the analysis of Chapter IV has shown that the personal property in any given code area is not marketable by itself (except as scrap) and consequently cannot support the label of ''market value.'' In the second instance, we do not yet know whether the figures represent an accurate allocation of the figure which *can* be called market value, that is, the unit value. With this understanding, the term ''market value'' will be used throughout, although when it has this questionable reference it will be enclosed in precautionary quotation marks.

The ratio figures expressing the relationship between assessed and ''market values'' are not shown in Table IV, simply in the interests of conserving space. But a quick examination of the figures will reveal that the ratio is 0.500 at every point in the table. For example, the assessed value of land in code area 100 in Alameda County is 50 percent of the ''market value'' of land in the same code area; the assessed value of improvements in code area 1000 in Tehama County is 50 percent of the ''market value'' of improvements in the same code area; the total assessed value of *all* land in Tulare County is 50 percent of the total ''market value'' of all land in the same county; and the grand total assessed value of all property in the six-county sample is 50 percent of the grand total ''market value'' computed at the same level.

There is nothing particularly startling about these ratio figures, in view of the manner in which the final assessment figures are determined. The Valuation Division first determines the ''market value'' figures shown in Table IV and then simply multiplies the figures by 0.500 with the help of its calculating equipment. Although the illustration of this relationship cannot be said to be proof that the Valuation Division does assess public utility property at 50 percent of true or market value, it does serve the useful purpose of transferring any debate about the ratio to a different level, namely, the level of the accuracy of the ''market value'' figures themselves. If the accuracy of the ''market value'' figures of Table IV is accepted, it cannot be denied that the assessment ratio is 0.500.

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[3] In addition, of course, it is necessary to test the accuracy of the figures which are not part of the unit value—leased property, nonoperative property, and money. In the case of the Pacific Telephone and Telegraph Company, these figures are small enough by any criterion to make very little difference to the end results, and may, for the moment, be neglected. It is the railroad enterprises that show the highest proportionate ownership of nonoperative property, and in these cases the techniques of valuation applied to such property can make a good deal of difference to the final assessment figures.

TABLE IV

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
ALAMEDA COUNTY								
100	$8,250	$713,330	$1,049,570	$1,771,150	$16,500	$1,426,660	$2,099,140	$3,542,300
200 [a]	8,000	959,580	473,260	1,440,840	16,000	1,919,150	946,520	2,881,670
301	42,550	1,286,380	2,649,290	3,978,220	85,100	2,572,750	5,298,580	7,956,430
304	------	------	244,410	244,410	------	------	488,810	488,810
400 [a]	133,750	91,140	1,124,430	1,349,320	267,500	182,270	2,248,860	2,698,630
501	15,620	1,024,780	442,260	1,482,660	31,240	2,049,560	884,520	2,965,320
502 [a]	------	------	16,710	16,710	------	------	33,420	33,420
503	------	------	2,640	2,640	------	------	5,280	5,280
504	------	------	25,600	25,600	------	------	51,190	51,190
505 [a]	------	------	34,590	34,590	------	------	69,180	69,180
506	------	------	20	20	------	------	30	30
507	------	------	45,720	45,720	------	------	91,440	91,440
508	------	------	1,510	1,510	------	------	3,020	3,020
509	------	------	5,200	5,200	------	------	10,400	10,400
510	------	------	8,930	8,930	------	------	17,860	17,860
511	------	------	620	620	------	------	1,230	1,230
512	------	------	120	120	------	------	230	230
513	------	------	1,710	1,710	------	------	3,420	3,420
514	------	------	760	760	------	------	1,510	1,510
515 [a]	------	------	14,900	14,900	------	------	29,800	29,800
516	------	------	7,800	7,800	------	------	15,590	15,590
517	------	------	3,360	3,360	------	------	6,720	6,720
518	------	------	46,930	46,930	------	------	93,850	93,850
519	------	------	4,960	4,960	------	------	9,920	9,920
520	------	------	1,620	1,620	------	------	3,240	3,240
521	------	------	50	50	------	------	100	100
522	------	------	5,010	5,010	------	------	10,020	10,020
523	------	------	50	50	------	------	100	100
524	------	------	1,930	1,930	------	------	3,860	3,860
525	------	------	10	10	------	------	10	10
527	------	------	360	360	------	------	720	720
600 [a]	4,000	201,850	117,210	323,060	8,000	403,690	234,420	646,110
601	------	------	1,270	1,270	------	------	2,540	2,540
701	239,670	15,046,040	11,528,270	26,813,980	479,340	30,092,070	23,056,540	53,627,950
704	------	------	280	280	------	------	560	560
800	------	------	226,480	226,480	------	------	452,960	452,960
900 [a]	400	28,570	31,840	60,810	800	57,140	63,670	121,610
1001	------	------	619,570	619,570	------	------	1,239,140	1,239,140
1002	------	------	2,010	2,010	------	------	4,010	4,010
1003	------	------	7,640	7,640	------	------	15,280	15,280
1004	------	------	115,590	115,590	------	------	231,180	231,180
1005	------	------	7,610	7,610	------	------	15,220	15,220
1006	------	------	16,420	16,420	------	------	32,840	32,840
1007	------	------	6,170	6,170	------	------	12,340	12,340
1009	------	------	220	220	------	------	440	440
1011	------	------	2,530	2,530	------	------	5,050	5,050
1013	------	------	11,770	11,770	------	------	23,530	23,530
1015	------	------	6,410	6,410	------	------	12,820	12,820
1016	------	------	260	260	------	------	520	520
5101	------	------	2,560	2,560	------	------	5,110	5,110
5102	------	------	9,520	9,520	------	------	19,030	19,030
5104	400	11,260	14,190	25,850	800	22,510	28,370	51,680
5201	------	------	1,590	1,590	------	------	3,180	3,180
5202	------	------	11,850	11,850	------	------	23,690	23,690
5204	------	------	790	790	------	------	1,580	1,580
5207	------	------	400	400	------	------	800	800
5208	------	------	2,850	2,850	------	------	5,700	5,700
5400	------	------	1,440	1,440	------	------	2,870	2,870
5401	------	------	220	220	------	------	430	430
5402	------	------	19,400	19,400	------	------	38,790	38,790

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
ALAMEDA COUNTY—Continued								
5403	------	------	$163,490	$163,490	------	------	$326,980	$326,980
5404	------	------	610	610	------	------	1,210	1,210
5405	------	------	290	290	------	------	580	580
5406	------	------	4,440	4,440	------	------	8,880	8,880
5407	------	------	2,750	2,750	------	------	5,500	5,500
5409	------	------	280	280	------	------	560	560
5411	------	------	2,200	2,200	------	------	4,400	4,400
5502	$930	$19,500	33,040	53,470	$1,860	$39,000	66,080	106,940
5504	------	------	3,350	3,350	------	------	6,700	6,700
5505	------	------	470	470	------	------	930	930
5509	------	------	4,870	4,870	------	------	9,740	9,740
5511	------	------	110	110	------	------	220	220
5512	------	------	560	560	------	------	1,110	1,110
5601	------	------	41,660	41,660	------	------	83,310	83,310
5602	------	------	1,910	1,910	------	------	3,810	3,810
5603	------	------	13,190	13,190	------	------	26,370	26,370
5604	310	10,210	29,320	39,840	620	20,420	58,640	79,680
5605	------	------	3,800	3,800	------	------	7,590	7,590
5606	------	------	1,580	1,580	------	------	3,160	3,160
5607	------	------	250	250	------	------	490	490
5608	------	------	21,580	21,580	------	------	43,160	43,160
5609	------	------	1,320	1,320	------	------	2,630	2,630
5800	20	------	51,970	51,990	40	------	103,940	103,980
5900	------	------	4,920	4,920	------	------	9,840	9,840
5901	------	------	2,570	2,570	------	------	5,140	5,140
5902	------	------	500	500	------	------	1,000	1,000
5903	------	------	3,260	3,260	------	------	6,520	6,520
5905	------	------	1,350	1,350	------	------	2,700	2,700
5906	------	------	51,200	51,200	------	------	102,400	102,400
5907	------	------	13,870	13,870	------	------	27,730	27,730
5909	------	------	14,010	14,010	------	------	28,010	28,010
5910	------	------	2,560	2,560	------	------	5,120	5,120
5911	------	------	7,650	7,650	------	------	15,290	15,290
5912	------	------	72,000	72,000	------	------	143,990	143,990
5914	------	------	37,740	37,740	------	------	75,470	75,470
5916	------	------	26,000	26,000	------	------	51,990	51,990
5918	------	------	1,610	1,610	------	------	3,220	3,220
5919	------	------	4,620	4,620	------	------	9,230	9,230
5920	------	------	11,080	11,080	------	------	22,150	22,150
5922	------	------	10,880	10,880	------	------	21,760	21,760
5923	500	56,900	21,800	79,200	1,000	113,800	43,600	158,400
5925	------	------	1,950	1,950	------	------	3,900	3,900
5929	------	------	2,480	2,480	------	------	4,950	4,950
5931	------	------	6,080	6,080	------	------	12,160	12,160
5934	------	------	350	350	------	------	690	690
6001	------	------	880	880	------	------	1,750	1,750
6003	------	------	8,230	8,230	------	------	16,450	16,450
6004	------	------	80	80	------	------	150	150
6007	------	------	270	270	------	------	530	530
6008	------	------	2,590	2,590	------	------	5,180	5,180
6101	------	------	22,720	22,720	------	------	45,430	45,430
6102	------	------	22,390	22,390	------	------	44,780	44,780
6103	------	------	5,840	5,840	------	------	11,670	11,670
6201	------	------	4,010	4,010	------	------	8,010	8,010
6202	------	------	38,840	38,840	------	------	77,680	77,680
6203	------	------	74,030	74,030	------	------	148,060	148,060
6205	------	------	120	120	------	------	240	240
6207	------	------	30	30	------	------	50	50
6209	------	------	1,980	1,980	------	------	3,960	3,960
6210	------	------	1,370	1,370	------	------	2,740	2,740

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
ALAMEDA COUNTY—Continued								
6211	------	------	$190	$190	------	------	$380	$380
6212	------	------	280	280	------	------	560	560
6213	------	------	1,030	1,030	------	------	2,050	2,050
6301	------	------	170	170	------	------	340	340
6302	------	------	16,260	16,260	------	------	32,520	32,520
6303	------	------	70,570	70,570	------	------	141,140	141,140
6304	------	------	6,940	6,940	------	------	13,880	13,880
6401	------	------	101,010	101,010	------	------	202,020	202,020
6402	------	------	6,870	6,870	------	------	13,740	13,740
6404	------	------	1,900	1,900	------	------	3,790	3,790
6500	------	------	3,360	3,360	------	------	6,720	6,720
6701	------	------	2,200	2,200	------	------	4,390	4,390
6702	------	------	700	700	------	------	1,390	1,390
6704	------	------	12,440	12,440	------	------	24,870	24,870
6900	------	------	600	600	------	------	1,200	1,200
6901	------	------	550	550	------	------	1,100	1,100
6902	------	------	3,200	3,200	------	------	6,400	6,400
6903	------	------	29,330	29,330	------	------	58,660	58,660
6904	------	------	600	600	------	------	1,190	1,190
6907	------	------	2,060	2,060	------	------	4,120	4,120
6909	------	------	50	50	------	------	100	100
6910	------	------	10,300	10,300	------	------	20,590	20,590
7000	------	------	41,550	41,550	------	------	83,090	83,090
7201	------	------	19,100	19,100	------	------	38,200	38,200
7202	------	------	41,450	41,450	------	------	82,900	82,900
7302	------	------	3,810	3,810	------	------	7,620	7,620
7305	250	2,900	42,490	45,640	500	5,790	84,980	91,270
7402	------	------	150	150	------	------	300	300
7403	------	------	51,380	51,380	------	------	102,750	102,750
7404	------	------	1,600	1,600	------	------	3,190	3,190
7405	------	------	24,580	24,580	------	------	49,160	49,160
7406	250	15,360	14,190	29,800	500	30,720	28,370	59,590
7407	------	------	30,010	30,010	------	------	60,010	60,010
7408	------	------	24,400	24,400	------	------	48,790	48,790
7410	------	------	6,800	6,800	------	------	13,600	13,600
7411	------	------	590	590	------	------	1,180	1,180
7501	------	------	870	870	------	------	1,740	1,740
7502	------	------	69,090	69,090	------	------	138,170	138,170
7503	------	------	1,920	1,920	------	------	3,840	3,840
7504	------	------	7,960	7,960	------	------	15,920	15,920
7505	------	------	1,470	1,470	------	------	2,930	2,930
7507	------	------	460	460	------	------	910	910
7509	------	------	170	170	------	------	330	330
7601	------	------	66,990	66,990	------	------	133,980	133,980
7602	------	------	28,120	28,120	------	------	56,240	56,240
7701	------	------	5,030	5,030	------	------	10,050	10,050
7702	------	------	660	660	------	------	1,320	1,320
7802	------	------	2,140	2,140	------	------	4,280	4,280
7803	------	------	2,470	2,470	------	------	4,940	4,940
7805	------	------	250	250	------	------	490	490
7806	------	------	300	300	------	------	590	590
7808	------	------	2,300	2,300	------	------	4,590	4,590
7810	------	------	1,390	1,390	------	------	2,770	2,770
7900	------	------	9,050	9,050	------	------	18,090	18,090
7902[a]	------	------	81,540	81,540	------	------	163,080	163,080
7903	------	------	8,380	8,380	------	------	16,750	16,750
7904	------	------	5,670	5,670	------	------	11,330	11,330
7905	------	------	10,440	10,440	------	------	20,870	20,870
7906	------	------	4,920	4,920	------	------	9,840	9,840
7907	------	------	500	500	------	------	1,000	1,000

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
ALAMEDA COUNTY—Continued								
7908	------	------	$22,220	$22,220	------	------	$44,440	$44,440
7909	------	------	50	50	------	------	100	100
7911	------	------	4,250	4,250	------	------	8,500	8,500
7912	------	------	4,910	4,910	------	------	9,820	9,820
7913	------	------	1,090	1,090	------	------	2,180	2,180
7914	------	------	220	220	------	------	440	440
7915	------	------	88,340	88,340	------	------	176,680	176,680
8001	------	------	930	930	------	------	1,850	1,850
8002	------	------	1,090	1,090	------	------	2,170	2,170
8004	------	------	14,530	14,530	------	------	29,060	29,060
8005	------	------	5,520	5,520	------	------	11,030	11,030
8006	------	------	3,140	3,140	------	------	6,270	6,270
8007	------	------	13,160	13,160	------	------	26,310	26,310
8009	------	------	4,070	4,070	------	------	8,140	8,140
8010	------	------	250	250	------	------	490	490
8014[a]	6,000	------	355,590	361,590	12,000	------	711,180	723,180
8015	------	------	31,100	31,100	------	------	62,200	62,200
8017	------	------	8,700	8,700	------	------	17,400	17,400
8019	------	------	71,890	71,890	------	------	143,780	143,780
8021	------	------	80	80	------	------	150	150
8022	------	------	28,840	28,840	------	------	57,680	57,680
8023	------	------	14,380	14,380	------	------	28,750	28,750
8024	------	------	1,640	1,640	------	------	3,270	3,270
8025	------	------	99,850	99,850	------	------	199,700	199,700
8028	------	------	13,900	13,900	------	------	27,800	27,800
8030	------	------	2,660	2,660	------	------	5,310	5,310
8034	------	------	50	50	------	------	100	100
8035	------	------	40,870	40,870	------	------	81,730	81,730
8039	------	------	22,470	22,470	------	------	44,930	44,930
8041	------	------	1,910	1,910	------	------	3,820	3,820
8042	------	------	90	90	------	------	170	170
8044	------	------	19,660	19,660	------	------	39,310	39,310
8046	------	------	820	820	------	------	1,640	1,640
8052	------	------	9,520	9,520	------	------	19,040	19,040
8053	------	------	140	140	------	------	270	270
8054	------	------	5,430	5,430	------	------	10,860	10,860
8057	------	------	220	220	------	------	430	430
8058	------	------	3,400	3,400	------	------	6,790	6,790
8060	------	------	2,980	2,980	------	------	5,950	5,950
8062	------	------	370	370	------	------	740	740
8064	------	------	440	440	------	------	880	880
8068	------	------	80	80	------	------	150	150
8070	------	------	5,010	5,010	------	------	10,020	10,020
8071	------	------	3,690	3,690	------	------	7,380	7,380
8073	------	------	30	30	------	------	50	50
8077	------	------	340	340	------	------	670	670
8200	------	------	46,340	46,340	------	------	92,670	92,670
8301	------	------	19,660	19,660	------	------	39,320	39,320
8304	------	------	1,790	1,790	------	------	3,570	3,570
8701	100	11,970	97,770	109,840	200	23,930	195,530	219,660
Totals	$461,000	$19,479,770	$21,805,870	$41,746,640	$922,000	$38,959,460	$43,610,770	$83,492,230

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
LASSEN COUNTY								
100	------	------	$30	$30	------	------	$50	$50
5300	------	------	5,970	5,970	------	------	11,930	11,930
5301	------	------	2,500	2,500	------	------	5,000	5,000
6700 [a]	------	------	32,140	32,140	------	------	64,270	64,270
6701	------	------	13,670	13,670	------	------	27,340	27,340
6802	------	------	22,810	22,810	------	------	45,610	45,610
6900 [a]	$10	$63,670	1,480	65,160	$20	$127,330	2,960	130,310
7400 [a]	40	65,800	31,250	97,090	80	131,600	62,500	194,180
7700	------	------	25,650	25,650	------	------	51,290	51,290
7703	------	------	24,740	24,740	------	------	49,480	49,480
8004	------	------	50	50	------	------	100	100
8201	------	------	30	30	------	------	50	50
8500	------	------	80	80	------	------	150	150
Totals	$50	$129,470	$160,400	$289,920	$100	$258,930	$320,730	$579,760
SUTTER COUNTY								
100 [a]	------	------	$190,780	$190,780	------	------	$381,550	$381,550
101	------	------	10	10	------	------	10	10
200 [a]	$370	$13,910	39,420	53,700	$740	$27,810	78,840	107,390
5102	------	------	32,610	32,610	------	------	65,220	65,220
5103	------	------	570	570	------	------	1,130	1,130
5105	------	------	9,450	9,450	------	------	18,900	18,900
5201	------	------	2,750	2,750	------	------	5,500	5,500
5202	------	------	1,820	1,820	------	------	3,630	3,630
5203	------	------	32,630	32,630	------	------	65,260	65,260
5300	------	------	81,750	81,750	------	------	163,490	163,490
5401	------	------	40	40	------	------	70	70
5402 [a]	------	------	29,750	29,750	------	------	59,490	59,490
5403	------	------	60	60	------	------	110	110
5404	------	------	210	210	------	------	410	410
5501	------	5,730	54,960	60,690	------	11,460	109,910	121,370
5503	------	------	150	150	------	------	290	290
5601	------	------	13,300	13,300	------	------	26,600	26,600
5603	------	------	6,420	6,420	------	------	12,830	12,830
5604	------	------	2,410	2,410	------	------	4,820	4,820
5700	------	------	8,520	8,520	------	------	17,030	17,030
5802	------	------	30	30	------	------	60	60
6001	------	------	61,720	61,720	------	------	123,440	123,440
6002	------	------	1,060	1,060	------	------	2,110	2,110
6101	------	------	45,110	45,110	------	------	90,210	90,210
6201 [a]	------	5,160	50,910	56,070	------	10,320	101,810	112,130
6203	------	------	3,400	3,400	------	------	6,800	6,800
6300	------	------	13,170	13,170	------	------	26,330	26,330
6301	------	------	1,160	1,160	------	------	2,320	2,320
6400	------	------	7,770	7,770	------	------	15,530	15,530
6500	------	------	5,870	5,870	------	------	11,740	11,740
6601 [a]	------	------	6,550	6,550	------	------	13,100	13,100
6603	------	------	10,940	10,940	------	------	21,870	21,870
6605	------	------	910	910	------	------	1,820	1,820
6700	50	9,350	122,290	131,690	100	18,690	244,570	263,360
6801	------	------	380	380	------	------	750	750
6805	------	------	3,410	3,410	------	------	6,820	6,820
7101	------	------	100	100	------	------	190	190
7102	------	------	9,060	9,060	------	------	18,110	18,110
7301	------	------	40,240	40,240	------	------	80,470	80,470
7302	------	------	360	360	------	------	720	720
7601	------	------	1,840	1,840	------	------	3,680	3,680
7602	------	------	4,420	4,420	------	------	8,830	8,830
7603	------	------	1,100	1,100	------	------	2,200	2,200
7701	------	------	8,120	8,120	------	------	16,240	16,240
7702	------	------	1,260	1,260	------	------	2,510	2,510

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
SUTTER COUNTY—Continued								
7703	------	------	$10	$10	------	------	$10	$10
7801	------	------	38,930	38,930	------	------	77,860	77,860
7802	------	------	15,390	15,390	------	------	30,780	30,780
7803	------	------	4,160	4,160	------	------	8,320	8,320
Totals	$420	$34,150	$967,280	$1,001,850	$840	$68,280	$1,934,290	$2,003,410
TEHAMA COUNTY								
100	------	------	$48,860	$48,860	------	------	$97,720	$97,720
201 [a]	$2,350	$4,830	162,990	170,170	$4,700	$9,660	325,980	340,340
300	------	------	3,380	3,380	------	------	6,750	6,750
5100	------	------	21,280	21,280	------	------	42,560	42,560
5300	------	------	770	770	------	------	1,540	1,540
5400	------	------	4,990	4,990	------	------	9,980	9,980
5600	------	------	14,500	14,500	------	------	29,000	29,000
5601	------	------	5,570	5,570	------	------	11,130	11,130
5700	------	6,880	126,210	133,090	------	13,760	252,410	266,170
6100	------	------	7,690	7,690	------	------	15,370	15,370
6300	------	------	30	30	------	------	50	50
6700	------	------	5,010	5,010	------	------	10,010	10,010
6701	------	------	160	160	------	------	320	320
6702	------	------	37,360	37,360	------	------	74,720	74,720
6703 [a]	------	5,690	44,180	49,870	------	11,380	88,350	99,730
6705	50	6,200	4,410	10,660	100	12,400	8,820	21,320
6707	------	------	13,740	13,740	------	------	27,480	27,480
6708	------	------	750	750	------	------	1,500	1,500
6709	------	------	270	270	------	------	540	540
7200	------	------	3,920	3,920	------	------	7,830	7,830
7600	------	------	2,680	2,680	------	------	5,350	5,350
7800	------	------	1,990	1,990	------	------	3,980	3,980
8000	------	------	2,840	2,840	------	------	5,670	5,670
8101	------	------	980	980	------	------	1,960	1,960
8201	------	4,980	67,100	72,080	------	9,960	134,190	144,150
8203	------	------	5,150	5,150	------	------	10,290	10,290
8600	------	------	1,440	1,440	------	------	2,870	2,870
8700 [a]	------	------	7,020	7,020	------	------	14,040	14,040
9000	------	------	26,010	26,010	------	------	52,010	52,010
9201	------	------	30	30	------	------	50	50
9400	------	------	15,020	15,020	------	------	30,030	30,030
9401	------	------	810	810	------	------	1,610	1,610
9500	------	------	78,760	78,760	------	------	157,520	157,520
9501	------	------	7,650	7,650	------	------	15,300	15,300
9502	------	------	60	60	------	------	110	110
9503	------	------	46,620	46,620	------	------	93,240	93,240
9600	------	------	430	430	------	------	860	860
9700	------	------	14,060	14,060	------	------	28,120	28,120
9900	------	------	3,540	3,540	------	------	7,080	7,080
9901	------	------	5,220	5,220	------	------	10,440	10,440
10000	------	8,110	97,160	105,270	------	16,220	194,310	210,530
10200	------	------	2,790	2,790	------	------	5,580	5,580
10201	------	------	30	30	------	------	50	50
10400	------	------	16,080	16,080	------	------	32,150	32,150
10401	------	------	17,980	17,980	------	------	35,960	35,960
Totals	$2,400	$36,690	$927,520	$966,610	$4,800	$73,380	$1,854,830	$1,933,010

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
TULARE COUNTY								
101	------	------	$132,270	$132,270	------	------	$264,540	$264,540
103	------	------	310	310	------	------	610	610
200 50	------	$10,380	4,390	14,770	------	$20,750	8,670	29,420
200 51					------	------	100	100
300 50	------	------	3,980	3,980	------	------	7,960	7,960
400 50	------	------	211,270	211,270	------	------	422,530	422,530
500 50	$9,200	207,450	239,100	455,750	$18,400	414,890	474,560	907,850
500 51					------	------	3,630	3,630
600 50[a]	8,800	647,350	358,150	1,014,300	17,600	1,294,700	690,490	2,002,790
600 51					------	------	25,810	25,810
701	------	------	1,640	1,640	------	------	3,270	3,270
702	------	------	100	100	------	------	200	200
703[a]	------	------	17,800	17,800	------	------	35,590	35,590
704	------	------	100	100	------	------	200	200
5202	------	------	3,520	3,520	------	------	7,030	7,030
5203	------	------	5,170	5,170	------	------	10,330	10,330
5301	------	------	210	210	------	------	420	420
5303	------	------	6,040	6,040	------	------	12,070	12,070
5500	------	------	9,140	9,140	------	------	18,280	18,280
5800	------	------	4,220	4,220	------	------	8,430	8,430
6000	------	------	14,970	14,970	------	------	29,930	29,930
6100	------	------	6,510	6,510	------	------	13,020	13,020
6301	------	------	1,690	1,690	------	------	3,370	3,370
6302	------	------	2,060	2,060	------	------	4,110	4,110
6303	------	------	710	710	------	------	1,420	1,420
6401	------	------	10,160	10,160	------	------	20,320	20,320
6500	------	------	180	180	------	------	350	350
6600	------	------	6,960	6,960	------	------	13,910	13,910
6801	------	------	70	70	------	------	140	140
6802[a]	------	------	6,540	6,540	------	------	13,070	13,070
6803	------	------	4,660	4,660	------	------	9,320	9,320
6804	------	------	160	160	------	------	310	310
7200	------	------	38,620	38,620	------	------	77,240	77,240
7402	------	------	2,430	2,430	------	------	4,850	4,850
7406	------	------	6,420	6,420	------	------	12,830	12,830
7502[a]	50	48,510	164,030	212,590	100	97,010	328,050	425,160
7601	------	------	18,710	18,710	------	------	37,410	37,410
7602	------	------	790	790	------	------	1,580	1,580
7603	------	------	20	20	------	------	30	30
7604	------	------	4,980	4,980	------	------	9,960	9,960
7700	------	------	8,980	8,980	------	------	17,960	17,960
8000[a]	------	------	13,390	13,390	------	------	26,770	26,770
8001	------	------	350	350	------	------	690	690
8002	------	------	1,660	1,660	------	------	3,320	3,320
8101	------	------	2,560	2,560	------	------	5,120	5,120
8103	------	------	23,690	23,690	------	------	47,370	47,370
8201	------	------	6,650	6,650	------	------	13,290	13,290
8401	------	------	8,350	8,350	------	------	16,700	16,700
8402	------	------	30,030	30,030	------	------	60,060	60,060
8601	------	------	10,220	10,220	------	------	20,440	20,440
8604	------	------	6,830	6,830	------	------	13,650	13,650
8605	------	------	620	620	------	------	1,240	1,240
8607	------	------	930	930	------	------	1,850	1,850
8608[a]	------	------	2,950	2,950	------	------	5,890	5,890
8609	------	------	1,260	1,260	------	------	2,520	2,520
8700	------	------	22,110	22,110	------	------	44,220	44,220
8801	------	------	2,380	2,380	------	------	4,750	4,750
8802	------	------	92,920	92,920	------	------	185,830	185,830
8900	------	------	3,840	3,840	------	------	7,680	7,680
9000	------	------	2,470	2,470	------	------	4,940	4,940

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
TULARE COUNTY—Continued								
9400	------	------	$7,450	$7,450	------	------	$14,900	$14,900
9601	------	------	1,880	1,880	------	------	3,750	3,750
9602	------	------	5,620	5,620	------	------	11,240	11,240
9603	------	------	15,850	15,850	------	------	31,690	31,690
9604	------	------	600	600	------	------	1,200	1,200
9605	------	------	3,120	3,120	------	------	6,240	6,240
9702	------	------	4,010	4,010	------	------	8,010	8,010
9901	------	------	16,030	16,030	------	------	32,060	32,060
10001	------	------	750	750	------	------	1,490	1,490
10002	------	------	14,600	14,600	------	------	29,190	29,190
10300	------	------	3,550	3,550	------	------	7,090	7,090
10501	------	------	16,080	16,080	------	------	32,160	32,160
10502	------	------	19,500	19,500	------	------	39,000	39,000
10700	------	------	3,250	3,250	------	------	6,490	6,490
10803	------	------	12,560	12,560	------	------	25,120	25,120
10804	------	------	1,990	1,990	------	------	3,980	3,980
10805	------	------	1,150	1,150	------	------	2,300	2,300
10902	------	------	20,180	20,180	------	------	40,350	40,350
11001	------	------	550	550	------	------	1,100	1,100
11003	------	------	1,380	1,380	------	------	2,760	2,760
11100	------	------	3,360	3,360	------	------	6,720	6,720
12001	------	------	7,210	7,210	------	------	14,420	14,420
12003	------	------	3,670	3,670	------	------	7,330	7,330
12004	------	------	2,040	2,040	------	------	4,070	4,070
12005	------	------	180	180	------	------	350	350
12006	------	------	2,580	2,580	------	------	5,160	5,160
12101	------	------	1,010	1,010	------	------	2,020	2,020
12200	$40	$47,260	19,910	67,210	$80	$94,510	39,810	134,400
12301	------	------	14,130	14,130	------	------	28,260	28,260
12302	------	------	13,020	13,020	------	------	26,040	26,040
12303	------	------	440	440	------	------	880	880
12304	------	------	41,560	41,560	------	------	83,120	83,120
12306	------	------	19,080	19,080	------	------	38,160	38,160
12307	------	------	210	210	------	------	410	410
12401	------	------	50,730	50,730	------	------	101,460	101,460
12402	------	------	13,350	13,350	------	------	26,690	26,690
12403	------	------	1,700	1,700	------	------	3,390	3,390
12404	------	------	1,560	1,560	------	------	3,120	3,120
12406	400	------	16,980	17,380	800	------	33,950	34,750
12500	------	------	6,240	6,240	------	------	12,470	12,470
12601	------	------	77,520	77,520	------	------	155,030	155,030
12602	------	------	32,260	32,260	------	------	64,520	64,520
12605	------	------	2,280	2,280	------	------	4,550	4,550
12700	------	------	1,870	1,870	------	------	3,730	3,730
13001	------	------	950	950	------	------	1,890	1,890
13002	------	------	11,380	11,380	------	------	22,750	22,750
13201	------	------	810	810	------	------	1,610	1,610
13202	------	------	9,660	9,660	------	------	19,310	19,310
13302	------	------	7,840	7,840	------	------	15,680	15,680
13305	------	------	2,470	2,470	------	------	4,940	4,940
13306	------	------	1,120	1,120	------	------	2,240	2,240
13501	------	------	30	30	------	------	50	50
13603	------	------	5,190	5,190	------	------	10,380	10,380
13605	------	------	4,590	4,590	------	------	9,180	9,180
13612	------	------	1,920	1,920	------	------	3,830	3,830
13703	------	------	640	640	------	------	1,270	1,270
13800	------	------	1,410	1,410	------	------	2,810	2,810
13801	------	------	1,900	1,900	------	------	3,800	3,800
13901	------	------	380	380	------	------	760	760
13902	------	------	660	660	------	------	1,320	1,320

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
TULARE COUNTY—Continued								
13903	------	------	1,360	1,360	------	------	2,720	2,720
13905	------	------	5,800	5,800	------	------	11,590	11,590
13906	------	------	1,590	1,590	------	------	3,180	3,180
14103	------	------	1,510	1,510	------	------	3,020	3,020
14104	------	------	40	40	------	------	80	80
14108	------	------	30	30	------	------	50	50
14109	------	------	140	140	------	------	280	280
14110	------	------	50	50	------	------	100	100
14301	------	------	5,570	5,570	------	------	11,130	11,130
14302	------	------	600	600	------	------	1,200	1,200
14303	------	------	280	280	------	------	550	550
14304	------	------	3,830	3,830	------	------	7,660	7,660
14401[a]	------	------	6,450	6,450	------	------	12,890	12,890
14402	------	------	11,790	11,790	------	------	23,570	23,570
14501	------	------	270	270	------	------	540	540
14502	------	------	2,150	2,150	------	------	4,290	4,290
14503	------	------	8,760	8,760	------	------	17,510	17,510
14504	------	------	2,170	2,170	------	------	4,340	4,340
14505	------	------	130	130	------	------	250	250
14602	------	------	18,370	18,370	------	------	36,740	36,740
14604	------	------	520	520	------	------	1,040	1,040
14701	370	176,900	84,300	261,570	740	353,790	168,600	523,130
14702	------	------	3,030	3,030	------	------	6,060	6,060
14801	------	------	61,880	61,880	------	------	123,760	123,760
14802	------	------	12,410	12,410	------	------	24,810	24,810
14804	------	------	14,630	14,630	------	------	29,250	29,250
14901	------	------	129,770	129,770	------	------	259,540	259,540
14902	------	------	130	130	------	------	260	260
14903	------	------	910	910	------	------	1,820	1,820
14904	------	------	790	790	------	------	1,570	1,570
14905	------	------	10,240	10,240	------	------	20,470	20,470
14906	------	------	130	130	------	------	260	260
15001	------	------	9,660	9,660	------	------	19,310	19,310
15003	------	------	24,010	24,010	------	------	48,010	48,010
15100	------	------	240	240	------	------	480	480
15201	------	------	280	280	------	------	560	560
15202	------	------	2,080	2,080	------	------	4,160	4,160
15302	------	------	115,040	115,040	------	------	230,080	230,080
15303	------	------	53,820	53,820	------	------	107,630	107,630
15304	------	------	2,120	2,120	------	------	4,230	4,230
15305	------	------	560	560	------	------	1,110	1,110
15306	------	------	70	70	------	------	130	130
15400	------	------	50	50	------	------	90	90
15501	------	------	4,400	4,400	------	------	8,800	8,800
15502	------	------	690	690	------	------	1,380	1,380
15802	------	------	6,190	6,190	------	------	12,380	12,380
15900	------	------	5,430	5,430	------	------	10,860	10,860
16101	------	------	2,280	2,280	------	------	4,560	4,560
16102	------	------	4,390	4,390	------	------	8,770	8,770
16103	------	------	6,350	6,350	------	------	12,700	12,700
16104	------	------	160	160	------	------	320	320
16105	------	------	1,360	1,360	------	------	2,720	2,720
16106	------	------	1,720	1,720	------	------	3,440	3,440
16201	------	------	6,160	6,160	------	------	12,310	12,310
16204	------	------	760	760	------	------	1,510	1,510
16300	------	------	3,960	3,960	------	------	7,920	7,920
16301	------	------	30	30	------	------	60	60
16601	------	------	5,510	5,510	------	------	11,010	11,010
16602	------	------	60	60	------	------	110	110
16603	------	------	1,550	1,550	------	------	3,100	3,100

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
TULARE COUNTY—Continued								
16604	------	------	$3,490	$3,490	------	------	$6,970	$6,970
16700	------	------	1,390	1,390	------	------	2,770	2,770
16701	------	------	22,750	22,750	------	------	45,500	45,500
16702	------	------	10	10	------	------	10	10
Totals	$18,860	$1,137,850	$2,740,410	$3,897,120	$37,720	$2,275,650	$5,479,950	$7,793,320
VENTURA COUNTY								
101	------	------	$79,990	$79,990	------	------	$159,970	$159,970
102	------	------	390	390	------	------	780	780
200 [a]	$1,500	$26,620	46,420	74,540	$3,000	$53,240	92,840	149,080
301	------	610	21,200	21,810	------	1,210	42,400	43,610
302	------	------	2,740	2,740	------	------	5,480	5,480
309	------	------	2,920	2,920	------	------	5,840	5,840
401 [a]	------	3,170	1,620	4,790	------	6,340	3,240	9,580
404	------	------	40	40	------	------	70	70
405	------	------	1,150	1,150	------	------	2,300	2,300
406	------	------	900	900	------	------	1,800	1,800
407	------	------	560	560	------	------	1,110	1,110
408	------	------	720	720	------	------	1,440	1,440
409	------	------	180	180	------	------	350	350
501 [a]	20,000	536,550	426,450	983,000	40,000	1,073,100	852,890	1,965,990
502	------	------	8,690	8,690	------	------	17,370	17,370
503	------	------	15,760	15,760	------	------	31,510	31,510
504	------	------	190	190	------	------	380	380
505	------	------	3,680	3,680	------	------	7,350	7,350
506	------	------	710	710	------	------	1,420	1,420
507	------	------	270	270	------	------	540	540
508	------	------	590	590	------	------	1,180	1,180
5300 [a]	------	------	96,050	96,050	------	------	192,100	192,100
5404	------	------	8,870	8,870	------	------	17,730	17,730
5405	------	------	980	980	------	------	1,960	1,960
5502	------	------	4,310	4,310	------	------	8,610	8,610
5503	------	------	2,780	2,780	------	------	5,560	5,560
5601	------	------	860	860	------	------	1,720	1,720
5602 [a]	------	------	7,160	7,160	------	------	14,310	14,310
5603	------	------	2,090	2,090	------	------	4,170	4,170
5801	------	------	90	90	------	------	170	170
5901	------	------	23,280	23,280	------	------	46,560	46,560
5902	------	------	8,020	8,020	------	------	16,040	16,040
5903	------	------	8,550	8,550	------	------	17,090	17,090
6202	------	------	2,460	2,460	------	------	4,920	4,920
6204	------	------	340	340	------	------	670	670
6205	------	------	13,670	13,670	------	------	27,340	27,340
6207	------	------	550	550	------	------	1,090	1,090
6209	------	------	1,320	1,320	------	------	2,640	2,640
6210	------	------	830	830	------	------	1,650	1,650
6212	------	------	1,440	1,440	------	------	2,870	2,870
6213	------	------	120	120	------	------	240	240
6214	------	------	970	970	------	------	1,930	1,930
6215	------	------	10,770	10,770	------	------	21,530	21,530
6216	------	------	4,640	4,640	------	------	9,280	9,280
6217	------	------	3,990	3,990	------	------	7,980	7,980
6219	------	------	100	100	------	------	200	200
6224	------	------	60	60	------	------	110	110
6225	------	------	2,090	2,090	------	------	4,180	4,180
6227	------	------	480	480	------	------	960	960
6501	------	------	20	20	------	------	40	40

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
VENTURA COUNTY—Continued								
6502	------	------	$27,860	$27,860	------	------	$55,720	$55,720
6504	------	------	850	850	------	------	1,700	1,700
6505	------	------	6,170	6,170	------	------	12,340	12,340
6506	------	------	940	940	------	------	1,880	1,880
6507	------	------	1,470	1,470	------	------	2,930	2,930
6600 [a]	------	------	41,340	41,340	------	------	82,670	82,670
6601	------	------	20,640	20,640	------	------	41,280	41,280
6702	------	------	8,480	8,480	------	------	16,950	16,950
6705	------	------	4,130	4,130	------	------	8,250	8,250
6706	------	------	370	370	------	------	730	730
6707	------	------	1,260	1,260	------	------	2,520	2,520
6708	------	------	530	530	------	------	1,060	1,060
6711	------	------	13,980	13,980	------	------	27,960	27,960
6712 [a]	------	------	3,650	3,650	------	------	7,290	7,290
6714	------	------	3,540	3,540	------	------	7,080	7,080
6715	------	------	300	300	------	------	590	590
6801	------	------	120	120	------	------	230	230
6802	------	------	19,250	19,250	------	------	38,490	38,490
6803	------	------	8,600	8,600	------	------	17,200	17,200
6805	------	------	50	50	------	------	100	100
6806	------	------	80	80	------	------	150	150
7001	------	------	7,990	7,990	------	------	15,980	15,980
7002	------	------	3,950	3,950	------	------	7,900	7,900
7003	------	------	34,160	34,160	------	------	68,310	68,310
7004	------	------	660	660	------	------	1,310	1,310
7005	------	------	4,140	4,140	------	------	8,280	8,280
7006	------	------	2,500	2,500	------	------	5,000	5,000
7009	------	------	17,790	17,790	------	------	35,580	35,580
7010	------	------	2,060	2,060	------	------	4,110	4,110
7011	------	------	4,590	4,590	------	------	9,170	9,170
7012	------	------	2,880	2,880	------	------	5,760	5,760
7013	------	------	7,790	7,790	------	------	15,570	15,570
7102	------	------	120	120	------	------	240	240
7301	------	------	7,360	7,360	------	------	14,710	14,710
7302	------	------	6,900	6,900	------	------	13,800	13,800
7303	------	------	6,730	6,730	------	------	13,460	13,460
7401	------	------	5,220	5,220	------	------	10,430	10,430
7402	------	------	5,000	5,000	------	------	9,990	9,990
7403	------	------	2,100	2,100	------	------	4,200	4,200
7404	------	------	3,480	3,480	------	------	6,950	6,950
7405	$150	$5,990	4,460	10,600	$300	$11,970	8,910	21,180
7501	100	------	23,140	23,240	200	------	46,280	46,480
7502	------	------	6,950	6,950	------	------	13,890	13,890
7504	420	------	50	470	840	------	100	940
7510	------	------	21,220	21,220	------	------	42,430	42,430
7701	------	------	25,530	25,530	------	------	51,050	51,050
7702	------	------	3,880	3,880	------	------	7,750	7,750
7704	------	------	7,340	7,340	------	------	14,670	14,670
7801	------	------	1,310	1,310	------	------	2,610	2,610
7803 [a]	------	------	18,260	18,260	------	------	36,510	36,510
8002	------	------	4,290	4,290	------	------	8,570	8,570
8003	------	------	1,510	1,510	------	------	3,010	3,010
8102	------	------	3,020	3,020	------	------	6,030	6,030
8201	------	------	5,050	5,050	------	------	10,100	10,100
8202	------	------	3,080	3,080	------	------	6,160	6,160
8301	------	------	1,650	1,650	------	------	3,300	3,300
8303	------	------	23,250	23,250	------	------	46,500	46,500
8304	------	------	3,890	3,890	------	------	7,770	7,770
8305	------	------	5,740	5,740	------	------	11,480	11,480
8308	------	------	1,520	1,520	------	------	3,040	3,040

TABLE IV—Continued

ASSESSED VALUES AND "MARKET VALUES" FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY AND BY CODE AREAS IN SELECTED COUNTIES, 1952

	Assessed values				*"Market values"*			
	Land	*Improvements*	*Personal property*	*Total*	*Land*	*Improvements*	*Personal property*	*Total*
VENTURA COUNTY—Continued								
8402	------	------	$2,860	$2,860	------	------	$5,720	$5,720
8404	------	------	4,550	4,550	------	------	9,100	9,100
8408	------	------	550	550	------	------	1,090	1,090
8412	------	------	4,670	4,670	------	------	9,340	9,340
8413	------	------	14,320	14,320	------	------	28,640	28,640
8414	------	------	1,410	1,410	------	------	2,810	2,810
8416	------	------	44,720	44,720	------	------	89,440	89,440
8417	------	------	990	990	------	------	1,980	1,980
8504	------	------	130	130	------	------	260	260
8507	------	------	1,160	1,160	------	------	2,310	2,310
8508	------	------	1,210	1,210	------	------	2,410	2,410
8703	------	------	2,300	2,300	------	------	4,600	4,600
8901	------	------	2,510	2,510	------	------	5,020	5,020
8904	------	------	43,510	43,510	------	------	87,020	87,020
9101 [a]	$50	$2,610	207,570	210,230	$100	$5,220	415,140	420,460
9102	------	------	6,450	6,450	------	------	12,900	12,900
9103	810	3,170	64,020	68,000	1,620	6,340	128,030	135,990
9305	------	------	60	60	------	------	110	110
9307	------	------	4,010	4,010	------	------	8,010	8,010
9309	------	------	330	330	------	------	650	650
Totals	$23,030	$578,720	$1,683,560	$2,285,310	$46,060	$1,157,420	$3,366,520	$4,570,000
Grand totals— six counties	**$505,760**	**$21,396,650**	**$28,285,040**	**$50,187,450**	**$1,011,520**	**$42,793,120**	**$56,567,090**	**$100,371,730**

NOTE: [a] Code areas selected for detailed analysis. See Table V.

SOURCE: State Board of Equalization, Valuation Division, Work Sheets.

Table V shows the final detail (for present purposes) of the allocation of the unit value of the Pacific Telephone and Telegraph Company for the 1952 assessment. The table has been constructed to show these data by selected code areas within the selected counties listed in Table IV. All of the individual items of property which fall into these code areas are described in Table V and, once again, are grouped according to the major property classes of land, improvements, and personal property. Two figures are associated with each item of property, viz.: the allocated ''market value'' figure and the reproduction cost new less depreciation of that item of property. It can readily be seen that Table V ties in with Table IV through the ''market value'' figures. For example, the total ''market value'' of all of the land items shown in Table V for a given code area is equal to the ''market value'' for land in that code area as shown in Table IV. The same equality obtains for improvements, personal property, and the total figures. If similar figures had been shown for every code area in every county in which the Pacific Telephone and Telegraph Company's property is located, the grand total would, of course, be equal to the unit value of the operative property, plus the estimated market value of the nonoperative property, plus the estimated market value of the leased property, plus the amount of money held by the company on assessment day.

Behind the reproduction cost new less depreciation figures of Table V lie all of the cost computations discussed in Chapter IX. These computations start with a complete list of the amount of property held in each code area and the physical characteristics and original costs of the property, as these data are supplied in the reports of the company to the Valuation Division and occasionally checked by the appraisal staff of the division. They also include, for broad classes of property, a ''factoring-up'' process to account for cost changes from the date of installation to the date of assessment, and a calculation of depreciation schedules to account for physical changes in the property over the same period. Needless to say, these computations cannot be shown in this chapter.

As explained in Chapter IX, the reproduction cost new less depreciation figures for the various land items of property are really appraisal figures rather than ''factored-up'' cost figures. They show the appraised value placed on the parcel at the time it was last examined by the Valuation Division's appraisal staff, with account being taken of any additions to or retirements from the parcel since that time.

The most important thing to notice about the reproduction cost new less depreciation figures is that they refer to 1947 (for the most part) rather than to 1952. The reproduction cost new less depreciation data are not available, in the detail required for the allocation calculations, at the time the allocation process must be conducted. As a result, the sum of the reproduction cost new less depreciation figures shown against each item of property in Table V does not equal the total reproduction cost new less depreciation figures shown in Chapter X for all of the operative property in 1952. Since these latter figures are computed for broad classes of property rather than for the individual items of property, they can, of course, be computed on a year-to-year basis. Thus, the allocation of unit value in any given year is based upon the reproduction cost new less depreciation breakdown for the last year in which a detailed reproduction cost study was made. For the Pacific Telephone and Telegraph Company this was 1947.[4] In years in which the reproduction cost new less depreciation figures are increasing (as in the four-year period involved in the present study), this administrative device naturally has the effect of making the ratio figures shown in Table V appear higher than they otherwise would be. This point is explained in further detail below.

Column 3 of Table V shows the ratio of each of the ''market value'' figures to each of the figures for reproduction cost new less depreciation. These ratios are significant, but must be interpreted with some care. It must be made quite clear, for example, that the quotation of reproduction cost new less depreciation figures and the calculation of ratios in Table V are not designed to show what the *true* market value figures should have been. At many stages of the present study it was suggested by various individuals interested in the problem of equalization that the *local* assessor has a tendency to assess the property of his jurisdiction at some percentage of reproduction cost new less depreciation and that, if equalization is to be accomplished, the State Board of Equalization should be required to pursue the same assessment tactics. In the survey of common property assessments for purposes of this investigation no attempt was made to explore the *techniques* used by the local assessors. As a result, no support is here given to the argument that local assessors *are* devoted to the assumption that reproduction cost new less depreciation and market value are synonomous. But it has been emphasized several times in this report that the reproduction cost new less depreciation of individual items of property cannot be said to be the market value of these items, even though, in certain cases, it may be a reasonable *evidence* of market value. In an even more important sense, the total reproduction cost new less depreciation cannot be said to be the market value of the entire enterprise. In the present discussion the reproduction cost new less depreciation figures are used only as an allocating device and not as an indication of the true market value.

In the early stages of this study of public utility assessment, the officials of the Valuation Division of the State Board of Equalization described the general theory of intrastate allocation used by the Division as one which involved the use of three major elements. These were the unit value figure; the figure for the total reproduction cost new less depreciation of the enterprise; and the figures for the reproduction cost new less depreciation of each individual item of property. In essence, this theory assumes that the unit value is spread throughout the operating system in the same way that the reproduction cost new less depreciation figures are spread throughout the system. From this the calculation would appear to be extremely simple and the theory would seem to lend itself admirably to strictly mechanical operations. If the unit value were, for example, 70 percent of the *total* reproduction cost new less depreciation, the 70 percent ratio would simply be applied to the reproduction cost new less depreciation of each individual *item* of property and the result would be the ''market value'' of each item. Naturally, all of these ''market values'' would add up to the total unit value of the enterprise. Other techniques would, no doubt, have to be applied to those property items that were not part of the unit value calculations such as leased property, money, and nonoperative property, but the great bulk of the property could be allocated by this convenient formula. From a practical point of view it might also be necessary to apply the ratio to the individual reproduction cost new less depreciation figures for some prior year (in the present case, 1947), since it is obviously impossible to compute the individual reproduction cost new less depreciation figures every year for every small item of property. In this case, of course, the ratio itself would also have to be based on the total reproduction cost new less depreciation figure for the prior year. With the understanding that the *current* reproduction cost new less depreciation figures for the broad classes of property must be used in the calculation of the unit value (if cost figures must be used at all in the calculation of the unit value), this device could be justified on the grounds of administrative convenience. In any event, the timing of the reproduction cost new less depreciation figures within a four- or five-year range could not be expected to produce extremely large differences in the allocation of unit value if the computed ratio were uniformly applied.

For the Pacific Telephone and Telegraph Company the ''prior year'' would, as mentioned above, be 1947, the year in which the last over-all reproduction cost study was completed. In other words, the year 1947 is the last year for which the Valuation Division has reliable cost figures *in the detail required for this allocation process.* Any additions or retirements since that time would, of course, be accounted for in the usual manner.

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[4] As is shown below, this is not quite true for all types of property, for the reproduction cost study is completed in different years for different types of property. The Valuation Division attempts to make use of the latest figures for reproduction costs in the allocation process. The validity of this technique is further discussed later in the present chapter.

TABLE V

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value" (3)*	*Reproduction Cost New, Less Depreciation (4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation (5)*
ALAMEDA COUNTY					
Code Area 200					
Map 279 1 6 Parcel 1	1	--------	$16,000	$16,000	1.00
Total Land	--	--------	$16,000	$16,000	1.00
Albany Main Office Building	2	--------	$296,000	$424,235	.70
Albany Central Office Equipment Dial	2	--------	1,621,000	2,317,572	.70
Albany Central Office Equipment Toll Excluding Switching	2	--------	150	198	.76
Albany House and Garage	2	--------	2,000	2,862	.70
Total Improvements	--	--------	$1,919,150	$2,744,867	.70
Furniture	3	--------	$3,480	$5,065	.69
Exchange Poles	3	533	26,120	34,272	.76
Toll Poles	3	45	2,300	2,970	.77
Toll Aerial Wire	3	39.6	2,220	2,871	.77
Exchange Aerial Cable	3	5,841.3	110,980	148,194	.75
Exchange Underground Cable	3	29,872.1	238,980	312,163	.77
Toll Underground Cable	3	2,781.3	69,530	89,892	.77
Exchange Underground Duct	3	40.16	154,620	201,453	.77
Toll Underground Duct	3	4.41	10,580	13,774	.77
Telephone Stations	3	6,688	327,710	244,179	1.34
Total Personal Property	--	--------	$946,520	$1,054,833	.90
Total for Code 200	--	--------	**$2,881,670**	**$3,815,700**	.76
Code Area 400					
Map 279 1 16 Parcel 2	1	--------	$77,500	$77,500	1.00
Map 279 1 16 Parcel 3	1	--------	190,000	190,000	1.00
Total Land	--	--------	$267,500	$267,500	1.00
Emeryville Garage Building	2	--------	$126,200	$181,237	.70
Emeryville Miscellaneous Improvements	2	--------	56,070	80,265	.70
Total Improvements	--	--------	$182,270	$261,502	.70
Emeryville Central Office Equipment Radio Telephone	3	--------	$4,360	$6,222	.70
Furniture	3	--------	21,720	30,143	.72
Other Work Equipment	3	--------	11,290	13,170	.86
Materials and Supplies	3	--------	1,827,000	2,055,500	.89
Exchange Poles	3	258	12,640	16,589	.76
Toll Poles	3	64	3,260	4,225	.77
Toll Aerial Wire	3	2.7	150	196	.77
Exchange Aerial Cable	3	3,160.8	60,060	80,189	.75
Exchange Underground Cable	3	5,493.6	43,950	57,408	.77
Toll Underground Cable	3	1,283.8	32,100	41,492	.77
Exchange Buried Cable	3	6.5	130	167	.78
Exchange Underground Duct	3	9.18	35,340	46,049	.77
Toll Underground Duct	3	4.36	10,460	13,617	.77
Telephone Stations	3	3,804	186,400	138,884	1.34
Total Personal Property	--	--------	$2,248,860	$2,503,851	.90
Total for Code 400	--	--------	**$2,698,630**	**$3,032,853**	.89

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value" (3)*	*Reproduction Cost New, Less Depreciation (4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation (5)*
ALAMEDA COUNTY—Continued					
Code Area 502					
Exchange Poles	3	58	$2,840	$3,729	.76
Toll Poles	3	24	1,220	1,584	.77
Exchange Aerial Wire	3	5.3	220	287	.77
Toll Aerial Wire	3	2.9	160	210	.76
Exchange Aerial Cable	3	224.0	4,260	5,683	.75
Toll Aerial Cable	3	166.1	4,980	6,411	.78
Exchange Buried Cable	3	15.3	310	394	.79
Telephone Stations	3	134	6,570	4,892	1.34
Exchange Underground Cable	3	1,578.7	12,630	16,497	.77
Exchange Underground Duct	3	.06	230	301	.76
Total Personal Property	--	--------	$33,420	$39,988	.84
Total for Code 502	--	--------	**$33,420**	**$39,988**	.84
Code Area 505					
Exchange Poles	3	120	$5,880	$7,716	.76
Toll Poles	3	21	1,070	1,386	.77
Exchange Aerial Wire	3	24.5	1,030	1,328	.76
Toll Aerial Wire	3	2.9	160	210	.76
Exchange Aerial Cable	3	1,246.0	23,670	31,611	.75
Toll Aerial Cable	3	166.1	4,980	6,411	.78
Telephone Stations	3	436	21,360	15,918	1.34
Exchange Underground Cable	3	1,379.0	11,030	14,411	.77
Total Personal Property	--	--------	$69,180	$78,991	.88
Total for Code 505	--	--------	**$69,180**	**$78,991**	.88
Code Area 515					
Exchange Poles—17 Each	3	17	$830	$1,093	.76
Exchange Aerial Cable—1,403.4 Miles	3	1,403.4	26,660	35,604	.75
Exchange Underground Cable—177.6 Miles	3	177.6	1,420	1,856	.77
Exchange Underground Duct—.23 Mile	3	.23	890	1,154	.77
Total Personal Property	--	--------	$29,800	$39,707	.75
Total for Code 515	--	--------	**$29,800**	**$39,707**	.75
Code Area 600					
Map 279 1 1 Parcel 7	1	--------	$8,000	$8,000	1.00
Total Land	--	--------	$8,000	$8,000	1.00
Livermore Repeater Station Building	2	--------	$54,000	$78,294	.69
Livermore Radio Antenna Supports	2	--------	160	217	.74
Livermore Central Office Equipment Toll Excluding Switching	2	--------	348,900	499,293	.70
Livermore Central Office Equipment Radio Telephone	2	--------	630	916	.69
Total Improvements	--	--------	$403,690	$578,720	.70
Livermore Central Office Equipment Management	3	--------	$37,690	$53,967	.70
Livermore Central Office Equipment Toll Excluding Switching	3	--------	510	736	.69
Furniture	3	--------	1,700	2,259	.75
Other Work Equipment	3	--------	430	522	.82
Materials and Supplies	3	--------	750	847	.89
Exchange Poles	3	486	23,810	31,250	.76
Exchange Aerial Wire	3	27.8	1,170	1,506	.78
Exchange Aerial Cable	3	2,134.0	40,550	54,140	.75
Toll Aerial Cable	3	8.6	260	332	.78
Exchange Underground Cable	3	237.3	1,900	2,480	.77
Toll Underground Cable	3	1,124.1	28,100	36,331	.77
Exchange Underground Duct	3	.60	2,310	3,010	.77
Toll Underground Duct	3	10.06	24,140	31,420	.77
Telephone Stations	3	1,451	71,100	52,976	1.34
Total Personal Property	--	--------	$234,420	$271,776	.86
Total for Code 600	--	--------	**$646,110**	**$858,496**	.75

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value"* *(3)*	*Reproduction Cost New, Less Depreciation* *(4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation* *(5)*
ALAMEDA COUNTY—Continued					
Code Area 900					
Map 279 1 13 Parcel 2	1	--------	$800	$800	1.00
Total Land	--	--------	$800	$800	1.00
Pleasanton Dial Office Building	2	--------	$5,520	$8,291	.67
Pleasanton Central Office Equipment Dial	2	--------	49,070	70,129	.70
Pleasanton Central Office Equipment Toll Excluding Switching	2	--------	2,550	3,648	.70
Total Improvements	--	--------	$57,140	$82,068	.70
Furniture	3	--------	$170	$250	.68
Other Work Equipment	3	--------	120	169	.71
Exchange Poles	3	182	8,920	11,703	.76
Toll Poles	3	13	660	858	.77
Exchange Aerial Wire	3	7.9	330	428	.77
Exchange Aerial Cable	3	1,179.0	22,400	29,911	.75
Toll Aerial Cable	3	23.7	710	915	.78
Exchange Underground Cable	3	67.1	540	701	.77
Exchange Underground Duct	3	.02	80	100	.80
Telephone Stations	3	607	29,740	22,162	1.34
Total Personal Property	--	--------	$63,670	$67,197	.95
Total for Code 900	--	--------	**$121,610**	**$150,065**	.81
Code Area 7902					
Exchange Poles	3	285	$13,960	$18,326	.76
Exchange Aerial Cable	3	1,293.7	24,580	32,821	.75
Exchange Underground Cable	3	4,544.0	36,350	47,485	.77
Toll Underground Cable	3	216.4	5,410	6,994	.77
Exchange Underground Duct	3	1.46	5,620	7,324	.77
Telephone Stations	3	1,494	73,210	54,546	1.34
Coaxial No. 3 Underground	3	3.1	3,950	4,674	.85
Total Personal Property	--	--------	$163,080	$172,170	.95
Total for Code 7902	--	--------	**$163,080**	**$172,170**	.95
Code Area 8014					
Map 279 1 18 Parcel 3	1	--------	$12,000	$12,000	1.00
Total Land	--	--------	$12,000	$12,000	1.00
Exchange Poles	3	725	$35,520	$46,618	.76
Exchange Aerial Wire	3	25.5	1,070	1,382	.77
Exchange Aerial Cable	3	5,588.2	106,180	141,773	.75
Exchange Underground Cable	3	10,003.8	80,030	104,540	.77
Toll Underground Cable	3	4,034.2	100,860	130,385	.77
Coaxial Cable No. 3 Underground	3	24.2	30,860	36,489	.85
Exchange Underground Duct	3	28.30	108,960	141,960	.77
Toll Underground Duct	3	24.30	58,320	75,895	.77
Telephone Stations	3	3,865	189,380	141,111	1.34
Total Personal Property	--	--------	$711,180	$820,153	.87
Total for Code 8104	--	--------	**$723,180**	**$832,153**	.87
LASSEN COUNTY					
Code Area 6700					
Toll Poles	3	1,025	$43,050	$55,924	.77
Toll Aerial Wire	3	370.6	21,120	27,610	.76
Telephone Stations	3	2	100	73	1.37
Total Personal Property	--	--------	$64,270	$83,607	.77
Total for Code 6700	--	--------	**$64,270**	**$83,607**	.77

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value"* *(3)*	*Reproduction Cost New, Less Depreciation* *(4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation* *(5)*
LASSEN COUNTY—Continued					
Code Area 6900					
Possessory Interest in Public Property	1	--------	$20	$20	1.00
Total Land	--	--------	$20	$20	1.00
Honey Lake Repeater Building	2	--------	$26,000	$37,572	.69
Honey Lake Central Office Equipment Toll Excluding Switching	2	--------	101,330	146,526	.69
Total Improvements	--	--------	$127,330	$184,098	.69
Furniture	3	--------	$70	$98	.71
Toll Poles	3	38	1,600	2,073	.77
Toll Aerial Wire	3	16.2	920	1,207	.76
Toll Aerial Cable	3	.9	20	39	.51
Toll Underground Duct	3	.10	200	262	.76
Telephone Stations	3	3	150	110	1.36
Total Personal Property	--	--------	$2,960	$3,789	.78
Total for Code 6900	--	--------	**$130,310**	**$187,907**	.69
Code Area 7400					
Map 279 18 1 Parcel 1	1	--------	$80	$80	1.00
Total Land	--	--------	$80	$80	1.00
Ravendale Repeater Building	2	--------	$27,600	$39,537	.70
Ravendale Central Office Equipment Toll Excluding Switching	2	--------	104,000	148,584	.70
Total Improvements	--	--------	$131,600	$188,121	.70
Furniture	3	--------	$60	$131	.46
Toll Poles	3	967	40,610	52,760	.77
Toll Aerial Wire	3	379.8	21,650	28,295	.77
Toll Aerial Cable	3	.7	20	30	.67
Toll Underground Duct	3	.08	160	210	.76
Total Personal Property	--	--------	$62,500	$81,426	.77
Total for Code 7400	--	--------	**$194,180**	**$269,627**	.72
SUTTER COUNTY					
Code Area 100					
Exchange Polls	3	588	$18,820	$24,384	.77
Toll Poles	3	61	2,560	3,328	.77
Exchange Aerial Wire	3	12.8	450	585	.77
Toll Aerial Wire	3	40.3	2,300	3,002	.77
Exchange Aerial Cable	3	8,987.0	170,750	222,428	.77
Toll Aerial Cable	3	9.1	300	394	.76
Exchange Underground Cable	3	876.1	6,660	8,752	.76
Exchange Buried Cable	3	420.8	13,890	18,195	.76
Coaxial No. 1 Buried	3	1.7	3,400	3,846	.88
Exchange Underground Duct	3	5.88	22,400	29,161	.77
Exchange Submarine Cable	3	199.7	6,390	16,188	.39
Coaxial No. 1 Submarine	3	1.5	5,700	6,704	.85
Telephone Stations	3	2,542	124,560	92,910	1.34
Toll Buried Cable	3	29.1	1,020	1,332	.77
Toll Submarine Cable	3	25.0	1,550	2,027	.76
Coaxial No. 1 Aerial	3	.4	800	949	.84
Total Personal Property	--	--------	$381,550	$434,185	.88
Total for Code 100	--	--------	**$381,550**	**$434,185**	.88

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value"* *(3)*	*Reproduction Cost New, Less Depreciation* *(4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation* *(5)*
SUTTER COUNTY—Continued					
Code Area 200					
Map 279 51 2 Parcel 1	1	--------	$740	$740	1.00
Total Land	--	--------	$740	$740	1.00
Live Oak Dial Office Building	2	--------	$6,460	$9,218	.70
Live Oak Central Office Equipment Dial	2	--------	19,700	28,447	.69
Live Oak Central Office Equipment Excluding Switching	2	--------	1,650	2,446	.67
Total Improvements	--	--------	$27,810	$40,111	.69
Furniture	3	--------	$170	$215	.79
Exchange Poles	3	165	5,280	6,843	.77
Toll Poles	3	44	1,850	2,401	.77
Toll Aerial Wire	3	43.1	2,460	3,211	.77
Exchange Aerial Cable	3	1,013.2	19,250	25,077	.77
Toll Aerial Cable	3	10.1	330	438	.75
Exchange Buried Cable	3	158.3	5,220	6,845	.77
Toll Buried Cable	3	203.6	7,130	9,317	.77
Exchange Underground Duct	3	.10	380	496	.77
Coaxial No. 1 Buried	3	12.7	25,400	28,733	.88
Telephone Stations	3	232	11,370	8,480	1.34
Total Personal Property	--	--------	$78,840	$92,056	.86
Total for Code 200	--	--------	**$107,390**	**$132,907**	.81
Code Area 5402					
Exchange Poles	3	495	$15,840	$20,528	.77
Exchange Aerial Wire	3	94.2	3,300	4,305	.77
Exchange Buried Cable	3	946.1	31,220	40,909	.76
Telephone Stations	3	185	9,060	6,762	1.34
Exchange Aerial Cable	3	3.5	70	87	.80
Total Personal Property	--	--------	$59,490	$72,591	.82
Total for Code 5402	--	--------	**$59,490**	**$72,591**	.82
Code Area 6201					
Trowbridge Repeater Building	2	--------	$5,000	$7,131	.70
Trowbridge Central Office Equipment Toll Excluding Switching	2	--------	5,320	7,592	.70
Total Improvements	--	--------	$10,320	$14,723	.70
Exchange Poles	3	9	$290	$373	.78
Toll Poles	3	294	12,350	16,041	.77
Exchange Aerial Wire	3	7.7	270	352	.77
Toll Aerial Wire	3	409.0	23,310	30,471	.76
Toll Aerial Cable	3	1.5	50	65	.77
Coaxial No. 1 Buried	3	19.6	39,200	44,343	.88
Toll Buried Cable	3	693.7	24,280	31,744	.76
Toll Underground Duct	3	.07	140	183	.77
Telephone Stations	3	39	1,910	1,425	1.34
Exchange Buried Cable	3	.1	10	4	2.50
Total Personal Property	--	--------	$101,810	$125,001	.81
Total for Code 6201	--	--------	**$112,130**	**$139,724**	.80

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] (1)	*Amount of Personal Property*[b] (2)	*"Market Value"* (3)	*Reproduction Cost New, Less Depreciation* (4)	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation* (5)
SUTTER COUNTY—Continued					
Code Area 6601					
Exchange Poles	3	47	$1,500	$1,949	.77
Toll Poles	3	23	970	1,255	.77
Exchange Aerial Wire	3	13.3	470	608	.77
Toll Aerial Wire	3	28.1	1,600	2,093	.76
Exchange Buried Cable	3	5.3	170	229	.74
Coaxial No. 1 Buried	3	3.9	7,800	8,823	.88
Telephone Stations	3	11	540	402	1.34
Exchange Aerial Cable	3	2.6	50	64	.78
Total Personal Property	--	--------	$13,100	$15,423	.85
Total for Code 6601	--	--------	**$13,100**	**$15,423**	.85
TEHAMA COUNTY					
Code Area 201					
Map 279 52 1 Parcel 1	1	--------	$4,500	$4,500	1.00
Map 279 52 1 Parcel 2	1	--------	200	200	1.00
Total Land	--	--------	$4,700	$4,700	1.00
Red Bluff Repeater Building	2	--------	$4,500	$6,418	.70
Red Bluff Office Equipment Toll Excluding Switching	2	--------	5,160	7,379	.70
Total Improvements	--	--------	$9,660	$13,797	.70
Red Bluff Central Office Equipment Manual	3	--------	$78,180	$111,690	.70
Red Bluff Central Office Equipment Toll Excluding Switching	3	--------	44,500	71,854	.62
Furniture	3	--------	4,040	5.323	.76
Other Work Equipment	3	--------	3,670	3,952	.93
Construction Work in Progress	3	--------	920	1,528	.60
Materials and Supplies	3	--------	14,720	16,555	.89
Exchange Poles	3	216	6,910	8,958	.77
Toll Poles	3	115	4,830	6,274	.77
Exchange Aerial Wire	3	25.3	890	1,156	.77
Toll Aerial Wire	3	101.3	5,770	7,547	.76
Exchange Aerial Cable	3	1,554.7	29,540	38,479	.77
Toll Aerial Cable	3	59.1	1,950	2,560	.76
Exchange Underground Cable	3	994.9	7,560	9,939	.76
Toll Underground Cable	3	220.2	5,730	7,388	.76
Coaxial No. 1 Underground	3	7.4	9,440	10,489	.90
Exchange Buried Cable	3	1.7	60	74	.81
Exchange Underground Duct	3	.39	1,490	1,934	.77
Toll Underground Duct	3	4.99	10,030	13,073	.77
Telephone Stations	3	1,954	95,750	71,419	1.34
Total Personal Property	--	--------	$325,980	$390,192	.84
Total for Code 201	--	--------	**$340,340**	**$408,689**	.83
Code Area 6703					
Proberta Repeater Building	2	--------	$4,680	$6,699	.70
Proberta Central Office Equipment Toll Excluding Switching	2	--------	6,700	9,570	.70
Total Improvements	--	--------	$11,380	$16,269	.70
Exchange Poles	3	133	$4,260	$5,516	.77
Toll Poles	3	133	5,590	7,256	.77
Exchange Aerial Wire	3	31.1	1,090	1,421	.77
Toll Aerial Wire	3	175.6	10,010	13,082	.77
Toll Buried Cable	3	413.4	14,470	18,917	.76
Telephone Stations	3	23	1,130	836	1.35
Coaxial No. 1 Buried	3	25.9	51,800	58,596	.88
Total Personal Property	--	--------	$88,350	$105,624	.84
Total for Code 6703	--	--------	**$99,730**	**$121,893**	.82

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value"* *(3)*	*Reproduction Cost New, Less Depreciation* *(4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation* *(5)*
TEHAMA COUNTY—Continued					
Code Area 8700					
Exchange Poles	3	216	$6,910	$8,958	.77
Toll Poles	3	100	4,200	5,456	.77
Exchange Aerial Wire	3	34.7	1,210	1,586	.76
Toll Aerial Wire	3	25.8	1,470	1,922	.76
Exchange Buried Cable	3	.3	10	13	.77
Telephone Stations	3	5	240	183	1.31
Total Personal Property	--	--------	$14,040	$18,118	.77
Total for Code 8700	--	--------	**$14,040**	**$18,118**	.77
TULARE COUNTY					
Code Area 600-50					
Map 279 54 1 Parcel 1	1	--------	$4,600	$4,600	1.00
Map 279 54 3 Parcel 1	1	--------	13,000	13,000	1.00
Total Land	--	--------	$17,600	$17,600	1.00
Visalia Main Office	2	--------	$9,000	$13,640	.66
Visalia Dial Office Building	2	--------	486,000	695,330	.70
Visalia Central Office Equipment Management	2	--------	246,900	348,432	.71
Visalia Central Office Equipment Dial	2	--------	382,300	544,998	.70
Visalia Central Office Equipment Toll Excluding Switching	2	--------	170,500	244,410	.70
Total Improvements	--	--------	$1,294,700	$1,846,810	.70
Furniture	3	--------	$14,590	$22,492	.65
Other Work Equipment	3	--------	12,150	16,186	.75
Materials and Supplies	3	--------	39,970	44,962	.89
Exchange Poles	3	1,295	41,440	53,704	.77
Toll Poles	3	35	1,470	1,910	.77
Exchange Aerial Wire	3	6.6	230	302	.76
Toll Aerial Wire	3	4.6	260	343	.76
Exchange Aerial Cable	3	8,494.3	161,390	210,234	.77
Toll Aerial Cable	3	330.0	10,890	14,296	.76
Exchange Underground Cable	3	6,685.9	50,810	66,792	.76
Toll Underground Cable	3	1,515.9	39,410	50,858	.77
Exchange Buried Cable	3	349.0	11,520	15,091	.76
Toll Buried Cable	3	153.1	5,360	7,006	.77
Exchange Underground Duct	3	9.80	37,340	48,602	.77
Toll Underground Duct	3	3.78	7,600	9,903	.77
Telephone Stations	3	5,214	255,490	190,572	1.34
Money	3	--------	570	570	1.00
Total Personal Property	--	--------	$690,490	$753,823	.92
Total for Code 600-50	--	--------	**$2,002,790**	**$2,618,233**	.76
Code Area 703					
Woodlake Central Office Equipment Management	3	--------	$3,300	$4,732	.70
Woodlake Central Office Equipment Toll Exchange Switching	3	--------	700	1,007	.70
Growers Service Central Office Equipment Toll Exchange Switching	3	--------	2,430	3,465	.70
Furniture	3	--------	10	20	.50
Exchange Poles	3	162	5,180	6,767	.77
Toll Poles	3	7	290	382	.76
Exchange Aerial Wire	3	11.5	400	526	.76
Toll Aerial Wire	3	1.9	110	142	.77
Exchange Aerial Cable	3	476.5	9,050	11,793	.77
Telephone Stations	3	288	14,110	10,526	1.34
Money	3	--------	10	10	1.00
Total Personal Property	--	--------	$35,590	$39,370	.90
Total for Code 703	--	--------	**$35,590**	**$39,370**	.90

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value"* *(3)*	*Reproduction Cost New, Less Depreciation* *(4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation* *(5)*
TULARE COUNTY—Continued					
Code Area 6802					
Exchange Poles	3	68	$2,180	$2,840	.77
Toll Poles	3	42	1,760	2,292	.77
Exchange Aerial Wire	3	22.4	780	1,024	.76
Toll Aerial Wire	3	9.4	540	700	.77
Exchange Aerial Cable	3	72.2	1,370	1,787	.77
Exchange Buried Cable	3	2.1	70	91	.77
Telephone Stations	3	130	6,370	4,752	1.34
Total Personal Property	--	--------	$13,070	$13,486	.97
Total for Code 6802	--	--------	**$13,070**	**$13,486**	.97
Code Area 7502					
Map 279 54 2 Parcel 1	1	--------	$100	$100	1.00
Total Land	--	--------	$100	$100	1.00
Delano Repeater Building	2	--------	$7,800	$11,094	.70
Delano Mobile Radio Equipment	2	--------	890	1,274	.70
Delano Central Office Equipment Toll Excluding Switching	2	--------	88,320	126,483	.70
Total Improvements	--	--------	$97,010	$138,851	.70
Earlimart Central Office Equipment Dial	3	--------	$13,350	$19,574	.68
Earlimart Central Office Equipment Toll Excluding Switching	3	--------	1,370	1,960	.70
Exchange Poles	3	845	27,040	35,042	.77
Toll Poles	3	25	1,050	1,364	.77
Exchange Aerial Wire	3	151.2	5,290	6,910	.77
Toll Aerial Wire	3	9.4	540	700	.77
Exchange Aerial Cable	3	566.9	10,770	14,031	.77
Toll Aerial Cable	3	5.0	160	217	.74
Toll Underground Cable	3	6,664.8	173,280	223,604	.77
Exchange Buried Cable	3	10.9	360	471	.76
Exchange Underground Duct	3	.16	610	793	.77
Toll Underground Duct	3	41.20	82,810	107,935	.77
Telephone Stations	3	233	11,420	8,516	1.34
Total Personal Property	--	--------	$328,050	$421,117	.78
Total for Code 7502	--	--------	**$425,160**	**$560,068**	.76
Code Area 8000					
Exchange Poles	3	193	$6,180	$8,004	.77
Exchange Aerial Wire	3	15.1	530	690	.77
Exchange Aerial Cable	3	665.7	12,650	16,476	.77
Exchange Buried Cable	3	154.7	5,110	6,689	.76
Telephone Stations	3	47	2,300	1,718	1.34
Total Personal Property	--	--------	$26,770	$33,577	.80
Total for Code 8000	--	--------	**$26,770**	**$33,577**	.80
Code Area 8608					
Toll Buried Cable	3	168.3	$5,890	$7,701	.76
Total Personal Property	--	--------	$5,890	$7,701	.76
Total for Code 8608	--	--------	**$5,890**	**$7,701**	.76

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value" (3)*	*Reproduction Cost New, Less Depreciation (4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation (5)*
TULARE COUNTY—Continued					
Code Area 14401					
Exchange Poles	3	65	$2,080	$2,696	.77
Toll Poles	3	42	1,760	2,292	.77
Exchange Aerial Wire	3	28.6	1,000	1,307	.77
Toll Aerial Wire	3	102.5	5,840	7,636	.76
Exchange Aerial Cable	3	5.1	100	126	.79
Exchange Buried Cable	3	.2	10	9	1.11
Exchange Underground Duct	3	.01	40	50	.80
Telephone Stations	3	42	2,060	1,535	1.34
Total Personal Property	--	--------	$12,890	$15,651	.82
Total for Code 14401	--	--------	**$12,890**	**$15,651**	.82
VENTURA COUNTY					
Code Area 200					
Map 303 56 1 Parcel 2	1	--------	$3,000	$3,000	1.00
Total Land	--	--------	$3,000	$3,000	1.00
Ojai Main Office Building	2	--------	$8,400	$12,026	.70
Ojai Central Office Equipment Dial	2	--------	44,840	64,278	.70
Total Improvements	--	--------	$53,240	$76,304	.70
Furniture	3	--------	$1,200	$1,499	.80
Other Work Equipment	3	--------	300	367	.82
Materials and Supplies	3	--------	570	645	.88
Exchange Poles	3	502	17,570	22,836	.77
Exchange Aerial Wire	3	8.7	320	419	.76
Exchange Aerial Cable	3	1,939.5	25,210	32,564	.77
Exchange Underground Cable	3	128.1	900	1,214	.74
Exchange Underground Duct	3	.37	1,300	1,858	.70
Telephone Stations	3	928	45,470	34,299	1.33
Total Personal Property	--	--------	$92,840	$95,701	.97
Total for Code 200	--	--------	**$149,080**	**$175,005**	.85
Code Area 401					
Santa Paula Co. Equipment Toll Excluding Switching	2	--------	$6,340	$9,065	.70
Total Improvements	--	--------	$6,340	$9,065	.70
Toll Poles	3	31	$1,740	$1,939	.90
Toll Aerial Wire	3	26.8	1,500	1,576	.95
Total Personal Property	--	--------	$3,240	$3,515	.92
Total for Code 401	--	--------	**$9,580**	**$12,580**	.76
Code Area 501					
Map 303 56 2 Parcel 1	1	--------	$30,000	$30,000	1.00
Map 303 56 1 Parcel 5	1	--------	10,000	10,000	1.00
Total Land	--	--------	$40,000	$40,000	1.00
Ventura Main Office Building	2	--------	$154,500	$222,782	.69
Ventura Central Office Equipment Toll	2	--------	159,500	228,608	.70
Ventura Central Office Equipment Dial	2	--------	391,200	558,845	.70
Ventura Central Office Equipment Toll Excluding Switching	2	--------	285,900	387,731	.74
Ventura Garage	2	--------	82,000	117,008	.70
Total Improvements	--	--------	$1,073,100	$1,514,974	.71

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value" (3)*	*Reproduction Cost New, Less Depreciation (4)*	*Ratio of "Market Value to Reproduction Cost New, Less Depreciation (5)*
VENTURA COUNTY—Continued					
Furniture	3	--------	$25,920	$37,456	.69
Other Work Equipment	3	--------	4,110	4,822	.85
Construction Work in Progress	3	--------	5,350	8,910	.60
Materials and Supplies	3	--------	26,670	30,005	.89
Exchange Poles	3	1,109	38,820	50,448	.77
Toll Poles	3	46	2,580	2,878	.90
Exchange Aerial Wire	3	102.2	3,780	4,925	.77
Toll Aerial Wire	3	58.8	3,290	3,458	.95
Exchange Aerial Cable	3	9,316.7	121,120	156,427	.77
Toll Aerial Cable	3	12.8	270	384	.70
Exchange Underground Cable	3	17,984.9	125,890	170,497	.74
Toll Underground Cable	3	1,463.2	33,650	44,276	.76
Coaxial No. 2 Underground	3	7.5	9,560	11,868	.81
Exchange Underground Duct	3	11.59	40,560	58,196	.70
Toll Underground Duct	3	28.48	71,200	97,436	.73
Telephone Stations	3	6,941	340,110	256,539	1.33
Money	3	--------	10	10	1.00
Total Personal Property	--	--------	$852,890	$938,535	.91
Total for Code 501	--	--------	**$1,965,990**	**$2,493,509**	.79
Code Area 5300					
Exchange Poles	3	353	$12,360	$16,058	.77
Exchange Aerial Wire	3	133.6	4,940	6,438	.77
Exchange Aerial Cable	3	5,358.1	69,660	89,962	.77
Exchange Underground Duct	3	11.84	41,440	59,451	.70
Telephone Stations	3	1,300	63,700	48,048	1.33
Total Personal Property	--	--------	$192,100	$219,957	.87
Total for Code 5300	--	--------	**$192,100**	**$219,957**	.87
Code Area 5602					
Material and Supplies	3	--------	$100	$115	.87
Exchange Poles	3	92	3,220	4,185	.77
Toll Poles	3	66	3,700	4,129	.90
Exchange Aerial Wire	3	61.0	2,260	2,940	.77
Toll Aerial Wire	3	58.4	3,270	3,435	.95
Telephone Stations	3	36	1,760	1,331	1.32
Total Personal Property	--	--------	$14,310	$16,135	.89
Total for Code 5602	--	--------	**$14,310**	**$16,135**	.89
Code Area 6600					
Exchange Poles	3	311	$10,890	$14,147	.77
Exchange Aerial Wire	3	45.5	1,680	2,193	.77
Exchange Aerial Cable	3	108.4	1,410	1,820	.77
Exchange Underground Cable	3	265.6	1,860	2,518	.74
Toll Underground Cable	3	1,547.6	35,590	46,830	.76
Exchange Buried Cable	3	26.1	600	781	.77
Exchange Underground Duct	3	.08	280	402	.70
Toll Underground Duct	3	9.87	24,680	33,767	7.3
Telephone Stations	3	116	5,680	4,287	1.32
Total Personal Property	--	--------	$82,670	$106,745	.77
Total for Code 6600	--	--------	**$82,670**	**$106,745**	.77

TABLE V—Continued

"MARKET VALUES" AND REPRODUCTION COST NEW, LESS DEPRECIATION, FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY SELECTED CODE AREAS WITHIN SELECTED COUNTIES, 1952

Property Description and Location	*Type of Property*[a] *(1)*	*Amount of Personal Property*[b] *(2)*	*"Market Value" (3)*	*Reproduction Cost New, Less Depreciation (4)*	*Ratio of "Market Value" to Reproduction Cost New, Less Depreciation (5)*
VENTURA COUNTY—Continued					
Code Area 6712					
Exchange Poles	3	39	$1,360	$1,774	.77
Toll Poles	3	30	1,680	1,877	.90
Exchange Aerial Wire	3	18.2	670	877	.76
Toll Aerial Wire	3	10.6	590	623	.95
Exchange Aerial Cable	3	124.9	1,620	2,097	.77
Telephone Stations	3	28	1,370	1,035	1.32
Total Personal Property	--	--------	$7,290	$8,283	.88
Total for Code 6712	--	--------	**$7,290**	**$8,283**	.88
Code Area 7803					
Exchange Poles	3	481	$16,840	$21,881	.77
Exchange Aerial Wire	3	116.4	4,310	5,609	.77
Exchange Aerial Cable	3	352.4	4,580	5,917	.77
Telephone Stations	3	220	10,780	8,131	1.33
Total Personal Property	--	--------	$36,510	$41,538	.88
Total for Code 7803	--	--------	**$36,510**	**$41.538**	.88
Code Area 9101					
Map 303 56 3 Parcel 1	1	--------	$100	$100	1.00
Total Land	--	--------	$100	$100	1.00
Ventura Auxiliary Repeater Building	2	--------	$2,400	$3,439	.70
Ventura Auxiliary Repeater Building	2	--------	2,480	3,486	.71
Ventura Central Office Equipment Toll Excluding Switching	2	--------	150	212	.71
Central Office Equipment Toll Excluding switching	2	--------	190	271	.70
Total Improvements	--	--------	$5,220	$7,408	.70
Exchange Poles	3	134	$4,690	$6,096	.77
Toll Poles	3	503	28,170	31,468	.90
Exchange Aerial Wire	3	67.9	2,510	3,272	.77
Toll Aerial Wire	3	828.6	46,400	48,730	.95
Exchange Aerial Cable	3	100.2	1,300	1,682	.77
Toll Aerial Cable	3	10.2	210	306	.69
Exchange Underground Cable	3	1,850.2	12,950	17,540	.74
Toll Underground Cable	3	1,970.7	45,330	59,633	.90
Coaxial No. 2 Underground	3	110.2	140,500	174,375	.81
Exchange Underground Duct	3	1.87	6,540	9,390	.70
Exchange Buried Cable	3	2.6	60	78	.77
Toll Underground Duct	3	46.59	116,480	159,394	.73
Telephone Stations	3	204	10,000	7,540	1.33
Total Personal Property	--	--------	$415,140	$519,504	.80
Total for Code 9101	--	--------	**$420,460**	**$527,012**	.80

NOTES: [a] The code number "1" means land, the code number "2" means improvements, and the code number "3" means personal property.

[b] Exchange poles, toll poles, and telephone stations are shown in this column by the number of each item in each code area. All other figures show the number of miles of each item in each code area.

SOURCE: State Board of Equalization, Valuation Division, Work Sheets.

If this theory had been put into practice in the 1952 allocation of unit value, the ratio that would have been applied to each of the individual reproduction cost new less depreciation figures would have been computed as follows:

(1) Unit value of the operative property for 1952	$820,000,000
(2) Total reproduction cost new less depreciation of the operative property for 1947	$763,976,302
(3) Ratio of 1952 unit value to 1947 reproduction cost new less depreciation—approximately	1.073[5]

That this theory was *not* fully put into practice is clearly indicated by the fact that the ratio figures of Table V are not, in fact, equal to 1.073. The closeness with which the actual practice approximated the theoretical formula, as the latter was first stated by the officials of the Valuation Division, can, then, be roughly measured by the closeness with which the actual ratio figures shown in Table V approximate 1.073 for each item of property shown in the table. A hasty examination of Table V will reveal wide deviations from the 1.073 ratio, with some items having ratios well above this standard and others having ratios substantially below it.

Attention must first be drawn to the difference between theoretical and actual ratios for the broad classes of property—land, improvements, and personal property. In these calculations, land occupies a unique position, for all of the ''market values'' for individual parcels are shown at 100 percent of the so-called ''Reproduction Cost New Less Depreciation'' figures. This indicates merely that land is not considered to be part of the allocation formula. It is subject to separate appraisal at periodic intervals and is shown on the ''market value'' sheets at this appraised value. As mentioned earlier, the term ''Reproduction Cost New Less Depreciation'' is a misnomer as applied to land. According to the techniques of the Valuation Division the ratio of unit value to total reproduction cost new less depreciation should be computed with each figure excluding the determined land values. Since it is not really the 1.073 ratio *per se* that is important in this explanation, but the fact that the several ratio figures of Table V are *different from one another*, this refinement had not been incorporated into the present calculations.

The Valuation Division has adopted this treatment for land because of the interpretations by its officials of the provisions in the Revenue and Taxation Code and in the California Constitution which require land to be separately assessed. If this interpretation were accepted for this report, it would clearly be necessary to check the land assessments of the Valuation Division by actual appraisals similar to those conducted by the division. This has, indeed, been done for a few sample properties and the results are reported in Chapter XIV. However, the presentation of this spot check should not be taken to indicate acceptance of the Valuation Division's allocation techniques with respect to the land items. Indeed, if the theoretical reasoning of Chapter IV be accepted, it follows that the same allocation methods should be applied to land as to all other types of operative property, for the contributions made to the total unit value by the various classes of property are basically indistinguishable. But for purposes of the present discussion, and in view of the markedly different allocation system applied to land than to other types of property, the comparison of broad classes of property is reduced to a comparison of improvements on the one hand and personal property on the other.

The sample selected for the Pacific Telephone and Telegraph Company consists of 36 code areas located in six counties. Sixteen of these code areas contain improvements assessed to the Pacific Telephone and Telegraph Company. These improvements are listed in Table V by the code number ''2,'' and a separate ratio of ''market value'' to reproduction cost new less depreciation is computed for each item of property listed. The total ''market value'' and the total reproduction cost new less depreciation of all improvements are shown for each code area and a ratio of ''market value'' to reproduction cost new less depreciation is computed for these totals. The 16 code area ratios thus computed show considerable uniformity, with a range of only .69 to .71. The median ratio is .70.

All 36 code areas contain personal property. This type of property is indicated in Table V by the code number ''3.'' The same computations are made for personal property as for improvements. The ratios expressed for the code area totals show a considerably wider range for personal property than for improvements, with a low ratio of .75 and a high ratio of .97. For personal property the median ratio is .875, indicating that approximately half of the code areas had ratios higher than .875 and that approximately half had ratios lower than .875. The median is thus 17.5 percentage points higher for personal property than for improvements. It is also interesting to note that the *lowest* code area ratio for personal property (.75) is higher than the *highest* code area ratio for improvements (.71).

The significance of these broad differences is obvious. If the spread of reproduction costs throughout the system is taken to be the ''correct'' or ''equitable'' or ''suitable'' criterion for the allocation of the unit value, those code areas which contain no improvements or which contain relatively large amounts of personal property are, by the allocation methods actually used, receiving an undue share of the total unit value at the expense of those code areas which contain relatively large amounts of improvements. There are, for example, 20 code areas in the sample that contain no improvements for the Pacific Telephone and Telegraph Company. These code areas have the advantage of the high ratios of ''market value'' to reproduction cost new less depreciation on personal property without the compensating influence of the low ratios on improvements. Of course, for the system as a whole, the compensating influence must be present, for the sum of all of the "market values" of the operative property must be equal to the unit value. But it can readily be seen that the compensation need not obtain for any one code area or even for any one county.

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[5] If this ratio had been computed at the 1952 reproduction cost new less depreciation figures it would have been .6759. The fact that the ratio based upon the 1947 figures is higher than that based on the 1952 figures indicates that the reproduction cost new less depreciation figures have increased markedly over the four-year period. As pointed out above, however, it is not the ratio itself that is important, but the comparison of each of the ratio figures applied to each item of property; in other words, the manner in which the ratio is applied.

An even greater variation appears when the ratios of individual items of property within given code areas are compared. For improvements these individual ratios range from .66 to .76, while for personal property they range from .39 to 2.50. In the case of personal property the extremities of the range can be somewhat misleading. For many of the "low value" properties a normal rounding of the figure for "market value" can produce a large percentage difference. Nevertheless, Table V shows clearly that the range is considerable and certainly gives no evidence of the simple, mechanical application of a single ratio figure to predetermined reproduction cost new less depreciation figures.

Although there are many different types of property involved in the statement of Table V, and although there are many individual ratio figures to consider, certain peculiarities do stand out in the table as requiring further attention. For example, the ratio for exchange poles is a consistent .77, with variations only between .76 and .78 throughout Table V. The ratios for toll poles show the same consistency except for Ventura County. Toll poles are listed 22 times in Table V—that is, they are shown for 22 code areas in the sample. In 16 of the cases the ratio is .77. In one other case the ratio is .76. But in the five cases shown for Ventura County the ratio is .90. This would seem to indicate that, in terms of reproduction costs, toll poles are "more valuable" in the illustrated code areas in Ventura County than in other illustrated code areas; at least it would seem to indicate that this is the assumption made by the Valuation Division. It would also indicate that toll poles in Ventura County are "more valuable" than exchange poles in Ventura County. This double comparison might be put another way: apparently the Valuation Division considers that the reproduction costs of toll poles in Ventura County contribute more to the unit value of the entire system than do the reproduction costs of identical toll poles in Alameda County; and that the reproduction costs of toll poles in Ventura County contribute more to the unit value of the entire system than do the reproduction costs of exchange poles in Ventura County.

Several types of coaxial cables are listed in Table V, and each has a different ratio attached to it. This is the same thing as saying that each type of coaxial cable is assumed to contribute to the unit value of the system in a way that is not explained by the reproduction cost new less depreciation of that type of cable. In general, the ratios which apply to the coaxial cable are high (over .80) indicating that it is the Valuation Division's opinion that coaxial cables as a group are relatively "more valuable" than their reproduction costs would indicate. The ratios range from a low of .81 for coaxial No. 2 underground to a high of .90 for coaxial No. 1 underground.

Table VI summarizes the same comparison of high and low ratios for other types of personal property.

TABLE VI

HIGH AND LOW RATIOS OF "MARKET VALUE" TO REPRODUCTION COST NEW LESS DEPRECIATION FOR THE PERSONAL PROPERTY OF THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY IN 36 SAMPLE CODE AREAS

Type of property	*Low ratio*	*High ratio*	*Number of cases*
Toll aerial wire	.76	.95	24
Exchange aerial wire	.76	.78	26
Toll aerial cable	.51	.78	14
Exchange aerial cable	.75	.80	27
Toll underground cable	.76	.90	11
Exchange underground cable	.74	.77	16
Toll underground duct	.73	.77	13
Exchange underground duct	.70	.80	19
Toll buried cable	.76	.77	6
Exchange buried cable	.74	2.50	16
Toll submarine cable	.76	--	1
Exchange Submarine cable	.39	--	1
Telephone stations	1.31	1.37	32
Central office equipment	.62	.70	10
Furniture	.46	.80	12
Materials and supplies	.87	.89	7
Other work equipment	.71	.93	7
Construction work in progress	.60	--	2

SOURCE: Computed from Table V.

The individual items of property listed as improvements show a good deal more uniformity in their ratios of "market value" to reproduction cost new less depreciation than do the items listed as personal property. The various types of central office equipment, for example, show ratios which range from .67 to .76, with the majority of the items having ratios of .70. Main office buildings are listed four times in the code areas schown in Table V. Two of these have ratios of .70, one has a ratio of .69, and the other has a ratio of .66.

There is no easy explanation of the wide disparity that shows up in the ratio figures as between the same type of property in different code areas or as between different types of property in the same code areas, since no clear pattern of ratios is discernable in Table V. Indeed, the only obvious conclusion is that the Valuation Division does *not* make use of the simple mechanical allocation formula indicated in the preliminary explorations.

How, then *is* the unit value allocated to the various code areas? Unfortunately, this question cannot be answered with certainty or with clarity. The process, it is clear, is highly subjective in character and gives many indications of arbitrary decision. The formula discussed above is used as a guide, but only as a very rough guide. Perhaps a more accurate analogy would be that the unit value—reproduction cost new less depreciation formula is a marker buoy that must be reached before the voyage is completed—a buoy that permits the route itself to be devious in the extreme and permits a maneuver in one direction so long as it is matched by a maneuver of equal magnitude in the opposite direction. Unfortunately, it is the maneuvers that yield the allocation figures, and, even though the goal of the total unit value is eventually reached, the allocation pattern can be greatly distorted in the process.

The brief explanation which follows represents many conversations with the officials of the Valuation Division and not the results of an exploration of statistical records and numerical calculations. The explanation is not documented. Indeed, it is felt that it cannot be documented, at least, without the expenditure of much more time and many more resources than were available for the present study. By the same token, no claims are laid for its absolute accuracy. It is, of necessity, a record of impressions.

According to the valuation scheme adopted by the Valuation Division, the first items of property that may be accounted for in the allocation process are the land items. The ''market values'' of these items are copied directly from the detail sheets of the previous year, with adjustments for any additions to or retirements from the system and for any reappraisals which may have been completed during the year. The regular program of land appraisal conducted by the Valuation Division assures, for a company as large as the Pacific Telephone and Telegraph Company, that changes in land values will be included in each assessment year for at least some of the counties which contain the company's land holdings. When all of the land values have been inserted on the detail sheets of the current year (the ''market value'' sheets similar in content to Table V), a certain percentage of the unit value will have been accounted for. With a few other exceptions, the allocation process *per se* must account for the rest of the unit value.

The other exceptions consist of such property as furniture, materials and supplies, other work equipment, construction work in progress, and so on. All of these are determined by some process of direct estimation, presumably with some account being taken of the reproduction costs of the items, rather than by a percentage allocation of the unit value. Once again, no pattern appears in the final results which would suitably explain the techniques. To the extent that these items are considered to be part of the operating property of the company they are, of course, part of the unit value, so that, when the ''market values'' of these items are placed upon the detail sheets for the current year, another portion of the unit value has been accounted for.

The remaining items of property contained in the unit value may be grouped under three major headings, ''continuous structures''; ''fixed structures''; and ''telephone stations.'' These labels are not entirely satisfactory, but the types of property included in each class are, with the exception of some marginal cases, fairly consistent. The fixed structures category includes office buildings, central office equipment, repeater stations, and the like. The continuous structures category includes such things as poles, wires, cables, ducts, and other items associated with the transmission system. If a simple, although not entirely accurate, description of the difference between the fixed and the continuous structures were desired, it might be said that the fixed structures are those that typically require a ''square-foot'' measure at some point in the calculations, while the continuous structures are those that typically require a linear foot measure or a direct count. The third category, telephone stations, includes such things as telephone instruments, drop and block wires, connecting equipment, insulating equipment and other equipment that is more or less directly associated with the instruments.

It appears that much the same allocation techniques are applied to the fixed structures as to the continuous structures, at least in the sense that the detail of some prior year is used as a starting point in each case. As always, the detail of the prior year must be adjusted to account for additions and retirements. For continuous structures the reproduction cost new less depreciation figures are, of course, computed on a ''unit'' basis, that is, the reproduction cost new less depreciation of a mile of toll aerial wire is computed by dividing the figure which the company shows in this account for the entire system (or for some accounting division thereof) by the number of miles of toll aerial wire in the system, and by ''factoring up'' the result. This reproduction cost new less depreciation of a mile of toll aerial wire is then simply multiplied by the number of miles of such wire in the various code areas. This technique clearly cannot be applied to the so-called ''fixed structures,'' for these lack the uniformity of characteristics that would make such an average calculation meaningful.

At this step in the allocation process the Valuation Division makes use of reproduction cost new less depreciation data that relate to *different* points in time. Although an over-all reproduction cost study is completed only once every four or five years, complete data are gathered for certain types of property at varying intervals. In the 1952 valuation, for example, it was found that reproduction cost data were available for the fixed structures for a date as recent as 1950, while the same type of data were available for the continuous structures for a date as remote as 1947. It seems to be this fact that comes closest to explaining the phenomenon of generally higher ratios for the continuous structures than for the fixed structures. Since the Valuation Division recognized that the trend of costs was upward in the period from 1947 to 1950, a lower ratio was applied to the more recent cost figures than to the more remote cost figures.

It is difficult to see what advantages are supposed to be associated with the use of the most *recent* data available when this also involves the use of data which apply to *different* points of time for different types of property. If reproduction cost figures are used in the construction of the unit value it cannot be denied that it is desirable to make use of the most recent data available in each individual case, for here an attempt must be made to make the individual figures as accurate as possible. *But in the allocation process the absolute accuracy of each individual reproduction cost figure is not nearly as important as the accuracy of the relationship between them.* This principle is clearly violated by the selection of reproduction cost new less depreciation figures computed at different times for different types of property. Furthermore, the violation receives only partial compensation through the selection of different ratios to be applied to the reproduction cost new less depreciation figures. It would be just as easy to guess at the reproduction cost new less depreciation figures themselves as to guess at the ratios which will make these reproduction cost new less depreciation figures comparable. It must be concluded, at least until suitable proof is provided to the contrary, that the markedly different ratios shown in Table V for these two broad classes of property represent the most arbitrary kind of allocation process.

The Valuation Division recognizes the shortcomings of the reproduction cost new less depreciation figures in another way. As previously stated, the depreciation element contained in the figures for reproduction cost new less depreciation is designed to account for physical depreciation only. But it may be that some items of property which have a long life expectancy are rapidly becoming obsolete or are currently idle as a result of shifts in the company's markets. These other considerations are assumed to be relevant to the allocation process, even though no system has yet been devised for measuring their influence. Thus, the adjustment of *particular* ratios depends almost entirely upon a knowledge of these characteristics by the appraiser or other officials of the Valuation Division. In the great majority of cases, such considerations would produce a downward revision of the ratio of ''market value'' to reproduction cost new less depreciation for the particular items of property in question, although this is not absolutely essential. Once again, there is no way of knowing just how *great* the revision should be. But it is apparently this feature of the allocation process that explains the wide variation of the ratios as between particular items of property within the same general category.

With the calculation of the ''market values'' of the fixed structures and the continuous structures made in the manner roughly described above, the final summation of the ''market value'' figures would be equal to the unit value by coincidence only. It is at this point that the Valuation Division makes use of the category of property labeled ''telephone stations.'' The ratio applied to telephone stations is determined after all of the other operative property has been allocated and is designed purely to ''take up the slack.'' It is designed, in other words, to make the answer come out right. Telephone stations have thus been selected as the most important single element in the allocation process. This has been done on the assumption that telephone stations are distributed throughout the system more or less in conformity with the distribution of company earnings. It is still true, however, that some code areas may not contain telephone stations (see Table V, Alameda County—Code Area 515; Lassen County—Code Area 7400; and Ventura County—Code Area 401), or may contain relatively few telephone stations, and will then not receive the advantages of ''having the slack taken up.'' Unless it can be concluded that the *value* of the company is thus distributed, the process must be judged faulty and productive of a more or less distorted pattern of assessed values throughout the State.

The role of telephone stations in the allocation process is illustrated in Table VII. This table shows, first, the ratio of ''market value'' to reproduction cost new less depreciation for all of the personal property of the Pacific Telephone and Telegraph Company in the sample code areas in the six selected counties, excluding telephone stations. It shows a similar ratio figure for improvements and for the total of improvements and personal property, the latter also excluding telephone stations. It can be seen that, if telephone stations were excluded, the ratio of ''market value'' to reproduction cost new less depreciation in this sample would be 79.59 percent for personal property, and 75.01 percent for all property (except land). Telephone stations themselves are shown to have a ratio of 133.76 percent in this sample. The inclusion of the telephone stations in the personal property group lifts the total personal property ratio to 87.61 percent and the grand total of personal property and improvements to 79.85 percent.

TABLE VII

RATIOS OF "MARKET VALUE" TO REPRODUCTION COST NEW, LESS DEPRECIATION, IN SIX-COUNTY SAMPLE FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, BY TYPE OF PROPERTY FOR THE 1952 ASSESSMENT

Type of property	*"Market value"*	*Reproduction cost new less depreciation*	*Ratio of "market value" to reproduction cost new less depreciation*
Personal property excluding telephone stations	$6,581,860	$8,269,219	79.59%
Improvements	5,409,960	7,717,688	70.10%
Total personal property and improvements, excluding telephone stations	$11,991,820	$15,986,907	75.01%
Total telephone stations	$1,920,900	$1,436,097	133.76%
Personal property including telephone stations	$8,502,760	$9,705,316	87.61%
Improvements	5,409,960	7,717,688	70.10%
Total personal property and improvements, including telephone stations	$13,912,720	$17,423,004	79.85%

SOURCE: Computed from Table V.

THE ALLOCATION OF THE UNIT VALUE OF GAS AND ELECTRIC AND RAILROAD COMPANIES

Although the basic theory applied to different types of utility enterprises in the allocation of unit value appears to be similar, the different circumstances that surround each allocation and the essentially subjective character of the process itself, make for some significant differences when the theory is applied to particular enterprises. In the case of telephone companies, for example, the greatest difficulties were seen to arise in the allocation of the ''market value'' to the continuous structures of the telephone system. It is with respect to this type of property that the data for reproduction cost new less depreciation are least satisfactory. The same difficulties exist in the case of the continuous structure of an electric utility system, although they appear to be even more severe in the latter case. In the allocation of ''market value'' to the continuous structures of an electric utility, the Valuation Division attempts to make use of a ''mile-of-wire'' formula similar to that described above for the Pacific Telephone and Telegraph Company. The ''mile-of-wire'' formula is, of course, used to determine the reproduction cost new less depreciation of a certain type of property in a given code area prior to the determination of the ''market value'' of that property in that code area. It is clear that the Valuation Division cannot examine every mile of wire in the electric system of the Pacific Gas and Electric Company to determine its physical characteristics and its reproduction cost new less depreciation. The division is forced, by the magnitude of the assessment task, to accept the figures supplied by the company in its report to the Valuation Division. Unfortunately, however, the accounts of the company will typically show only an item which applies to a much wider geographical area than a given code area, although it will often be possible for the company to report the *number* of miles of wire in that code area. From this data, the Valuation Division could compute the reproduction cost new less depreciation of the ''typical'' mile of wire in the system and could then simply multiply this cost figure by the number of actual miles of wire in the code area in question. But the Valuation Division could not be assured that the ''typical'' mile of wire had the same physical characteristics as the *specific* miles of wire in the code area. A mile of wire in a center of population will, for example, contain much more than a mile of wire in a rural area, for the former will be associated with many more transformers, connections, meters, and other equipment than will the latter, and may, depending upon circumstances, be heavier or lighter wire. As a result, the Valuation Division assumes that the simple ''mile-of-wire'' computation by which the reproduction costs themselves are spread over the continuous structures, understates the reproduction cost new less depreciation in the urban areas and overstates the reproduction cost new less depreciation in the rural areas. Rather than adjust the reproduction cost new less depreciation figures to account for these differences in the physical characteristics of the property, the Valuation Division adjusts the ratio applied to the reproduction cost new less depreciation figures in the process of deriving the ''market value'' figures. As a result, the ratios of ''market value'' to reproduction cost new less depreciation show a good deal of disparity with respect to such types of property as between the property located in areas of concentrated population and that located in areas of sparse population. This adjustment is designed purely to account for a deficiency in the data, and, as such, might be accepted as an administrative necessity. To be sure, there is no way of knowing how large an adjustment should be made in any given case unless such an exhaustive survey were made that an adjustment of this type would no longer be required. But the adjustment itself seems appropriate enough, even though the magnitude of the adjustment must depend upon the assessor's intuitive powers. It is to be assumed, of course, that the more data the Valuation Division is able to collect, and the finer its statistical calculations, the less will it be necessary to make use of this subjective adjustment in the allocation process.

In the case of electric utilities the Valuation Division makes a further adjustment in the allocation of the unit value and moves one step further from the reproduction cost new less depreciation formula discussed above. This adjustment represents an attempt to locate the source of earnings of the system and to apply higher ratios in these code areas than would be warranted by a strict application of the reproduction cost new less depreciation formula. To generalize, this results in a relatively large percentage of the unit value being allocated to the distribution system and to the code areas that contain that system than to the transmission and generating systems. The device clearly represents an attempt to insert an earnings element into the allocation formula and to channel more of the unit value into those areas from which the earnings are presumed to flow. Once again, the degree of attention paid to this factor and the specific weights applied in any given case are obscured by the subjective character of the processes involved. But in view of the discussions of Chapter IV and Chapter VIII, there is clearly little to justify this kind of adjustment in the allocation formula. If the Valuation Division is prepared to accept the instructions of the unit rule in its *valuation* activities, there can be no justification for a violation of the unit rule in its *allocation* activities. Yet this attempt to associate earnings with one portion of the system more than with another is an obvious violation of the unit rule. Certainly the distribution system of an electric utility would show very little earnings ability without the transmission system and the generating system. In strict logic, revenues may not be claimed to arise at the point of sale of the utility services, for they depend upon the integrated operations of all of the items of property that comprise the entire operating structure of the enterprise.

The allocation of the unit value of railroad enterprises on an intrastate basis presents a most perplexing aspect. Once again, the ''reproduction cost new less depreciation'' rule appears to be observed more in the breach than in the performance. With respect to main-line track, for example, the Valuation Division makes an attempt, as in the case of the continuous structures of an electric utility, to apply an earnings factor. In this case, earnings are assumed to be directly related to the "ton-miles" traveled, so that the "ton-miles" measure is used to adjust the reproduction cost new less depreciation of the main-line track. This adjustment is not made to the branch-line track, however, for this property tends to be allocated by the reproduction cost new less depreciation formula. In the case of the railroads, the most important differences in allocation technique appear to be those that relate to the allocation of land values. The Valuation Division first distinguishes between the right of way and other land. The land that is *not* part of the right of way is treated in much the same way as for other companies, that is, it is separately appraised and inserted on the rolls at 50 percent of the appraisal. The right of way, however, is considered to be part of the unit value and an attempt is made to allocate the value by the reproduction cost new less depreciation formula. It is the sequence of these computations that is particularly revealing in this case, however. The non-right-of-way items are appraised first and inserted in the detail sheets at their "market values." Since these are also part of the unit value, the total appraised value of such items is subtracted from the unit value, and, with some exceptions, the remainder is allocated according to the cost formula. This means, of course, that, whenever reproduction costs are higher than the unit value, the greatest bulk of the "land value" is allocated to the *non*-right-of-way land. This, indeed, appears to be the case in the present operation of the Valuation Division, for the right-of-way land is assessed at a relatively small fraction of what it might sensibly be appraised for, while the other land of the system is assessed at close to 50 percent of a sensible appraised value. Of course, to the extent that these types of land are assessed at relatively high ratios, the technique has the effect of reducing the ratios of *all* other property, for there is just so much unit value to be allocated in any one year. The rolling stock of a railroad is also allocated on a "mile-of-track" basis, with the ratio adjusted to take account of the fact that more rolling stock operates on main-line track than on branch-line track, and to take account of the supposed extra earnings element in main-line track operations.

This brief account of the allocation of the unit value for gas and electric companies and railroad companies should be enough to indicate the severity of the problems associated with this step in the assessment process. But the brevity of the treatment should not be taken to indicate the relative unimportance of this step. Indeed, there is reason to suppose that many debates regarding intercounty equalization in the State of California have been carried on in terms of the allocation of the unit value of the public utility enterprises in the State, albeit sometimes unwittingly. It was stated in Chapter I that the real need for intercounty equalization comes from the linkage between the property assessments and the allocation of state funds to local districts. The more complete treatment of the Pacific Telephone and Telegraph Company in this chapter indicates the highly subjective character of the allocation of the unit value. By implication, it also indicates the highly subjective character of the allocation of a portion of the state funds to local districts.

CHAPTER XIV

EVALUATION OF PUBLIC UTILITY ASSESSMENTS IN CALIFORNIA

In the theoretical discussions of Division II and in the descriptive analyses of Chapters IX through XIII of this report, one conclusion stands out as a clear and irrefutable fact: there is no simple, scientific formula that may with confidence be applied to the assessment of public utility property. Although the volume of factual data associated with a public utility enterprise is often extremely large, and although the quality of the raw data is often of undeniable excellence, these data may be woven into the fabric of an assessed valuation only by processes that are highly subjective and highly individualistic in character. The typical absence of sales figures that relate to the entire utility system implies that the assessor of public utility property must attempt to simulate a market situation for each enterprise subject to valuation and to ''invent'' a market value that is logically consistent with the conditions of such a market situation. The unsatisfactory character of such evidence cannot be denied: neither can it be mitigated in any substantial way.

If these difficulties are claimed to be inevitably associated with the *assessment* of public utility property, they must, with at least equal vigor, be claimed to be associated with any attempt to *evaluate* the assessment processes. There is, in other words, no absolute standard against which the assessments may be placed for comparison and which will permit the conclusion that one value figure is ''correct'' while all other value figures are ''incorrect.'' There are, nevertheless, certain theoretical tests of logic and relevance which may be applied once an agreement is reached as to the concept of value that is being pursued in the assessment process. These, in turn, are supplemented by certain tests of administrative procedure which may in some cases strengthen, and in other cases weaken the theoretical reference. These tests were described, in the introductory comments of Chapter IX of this report, by the statement of five questions which it was thought necessary to keep in mind in the examination of the assessment techniques used by the Valuation Division of the State Board of Equalization in its assessment of public utility property. It is within the framework of these five questions that this general evaluation of assessment techniques is presented.

The first of these questions related to the broad theoretical and conceptual bases of the valuation techniques. At this level, the conclusions are, with some reservations, favorable to the Valuation Division. Undoubtedly the most important of these basic issues is the two-sided problem of selecting a concept of value and a concept of the unit of property to be valued. On the surface at least, the concepts selected by the Valuation Division of the State Board of Equalization correspond closely with those suggested in Chapter IV of the present report. There is, in other words, an expressed preference by the Valuation Division for a ''market value'' interpretation of the several statutory definitions of the value concept to be used for property tax purposes; and there is a recognition of the so-called ''unit rule'' of assessment by which the property of a public utility enterprise is first valued as an entity, with this unit value then being allocated to the individual taxing jurisdictions in the State. The valuation Division has, to be sure, shown some uncertainty with respect to which specific items should be included in the basic unit and which should be subject to separate valuation. For example, in the 1951 assessment for some of the companies discussed in the preceding chapters the Valuation Division chose to include the nonoperative property in the basic valuation unit, while for other companies the nonoperative property was removed before the determination of the unit value. The 1952 assessments show the clear preference of the Valuation Division for the exclusion of the nonoperative property and the determination of a separate value for this type of property. As pointed out in earlier chapters, this latter method does represent the consensus of professional opinion regarding the character of the basic valuation unit, although a good argument can, in many cases, be presented for the unit assessment of *all* utility property, with nonoperative property included in the unit. Similar indecision exists with respect to the valuation unit as shown in the treatment of subsidiary corporations. The only subsidiary corporation specifically examined in the present study was, of course, the San Diego and Arizona Railway Company, a wholly owned subsidiary of the Southern Pacific Company. It will be recalled from the explanations of Chapter XII that the Valuation Division considered the San Diego and Arizona Eastern Railway Company to be part of the Southern Pacific Company valuation unit in the 1951 valuation, so that, in effect, the former was considered to be a ''branch line'' of the latter. It was also shown that the Valuation Division attempted to change its methods in the 1952 valuation and to value these two enterprises as separate units. In Chapter IV it was pointed out that there are no logical grounds for preferring one or the other of these techniques *except in the case of a wholly owned subsidiary.* In all other cases, the ownership boundaries cannot be made to correspond with any boundaries of functional relationship or boundaries of property tax liability; but in the case of the wholly owned subsidiary, there is every reason for preferring the wider rather than the narrower definition of the unit. In all but the formal sense the two corporations are indistinguishable and should be valued as a single unit. No professional agreement has been evinced on this point in the past, however, and none is expected in the near future. Thus, although it is felt that the Valuation Division is in error in its 1952 methods, the feeling is not here converted into a strong criticism of the methods.

The theoretical acceptance of the concepts of market value and the unit rule of assessment must, of course, always be tempered by the kinds of evidence used to produce the unit value and the manner in which these kinds of evidence are themselves constructed. In this it is felt that the techniques of the Valuation Division are more open to criticism, although, once again, the techniques receive some support from the fact that they are based upon fairly conventional practice. This critical reference, of course, is to the use of the figures for reproduction cost new less depreciation and historical cost new less depreciation as direct evidences of the unit value of the enterprise as a whole. The case against the use of these cost magnitudes, at least as evidences of value parallel to the earnings and the stock and debt evidences, was developed at length in Chapter IV and in Chapter VII, and it is not necessary to repeat the argument at this point. It is necessary merely to state the conclusion that, although the Valuation Division explicitly accepts the unit rule approach to valuation, to the extent that it considers these two cost magnitudes as direct evidences of market value it rejects the logic behind the unit rule. It must be said, however, that there is some doubt about the *extent* to which the Valuation Division does consider the cost evidences in the valuation process. There is, indeed, a strong suggestion that these data are given relatively little weight in the final valuation steps. The uncertainty of the present reference results from the subjective character of the final decision with respect to the unit value of the assessee and from the fact that the relationship between the unit value and the various evidences of value is by no means uniform for the several enterprises subject to this type of valuation. The argument that both reproduction cost new less depreciation and historical cost new less depreciation are considered by the Valuation Division as evidences of value but not as very good evidences of value is hardly a sufficient justification of these techniques. Rather it introduces a further criticism, to the effect that the final step in the valuation process, by which the various evidences are combined to yield a final market value figure, is needlessly subjective and needlessly obscure. The process of averaging and weighting involved in this final determination is, however, further evaluated later in the present chapter. In view of the theoretical analysis of Division II, there can, of course, be no criticism of the *relevance* of the other two evidences of market value used by the Valuation Division, i.e., the earnings evidence and the stock and debt evidence. Although each contains inherent difficulties from the point of view of unit value determination, they appear to be the best evidences of value available for the valuation of property that is rarely marketed as a unit. It may be, of course, that the methods used by the Valuation Division to *construct* the evidences themselves indicate, in some respects, a lack of understanding of the more basic theoretical concepts of value and the unit of valuation. There is, in fact, a continuous chain of logic from the concept of market value to the basic and unrefined data used to construct the evidences of market value, and a faulty manipulation of the data at any stage of the valuation process may indicate a fundamental misconception about the concept of market value itself. It seems appropriate, however, to reserve this possibility for discussion in later portions of the present chapter when the computation of the evidences of value are evaluated in detail.

One further area of possible misconception of the fundamental and theoretical variety remains to be discussed. This involves the process of allocating the unit value to the various taxing jurisdictions which contain the property of the assessee. In an evaluation of these allocation processes it is difficult to distinguish between basic errors of theory and accessory errors of application. Furthermore, it is difficult to distinguish between those illogical elements which are forced upon the assessor by the character of the laws under which he must operate, and those illogical elements for which the assessor himself is responsible. It has already been shown that, no matter what other laws make the allocation of a unit value figure necessary, such allocation must always be held to be a violation of the law of logic that goes under the label of the "unit rule of valuation." Acceptance or rejection of a particular allocation formula must be based entirely upon such things as its administrative convenience, its inherent objectivity, or the manner in which it reconciles conflicting jurisdictional interests. Of course, if the assessment agency attempts to *justify* the formula as one which is calculated to measure the market values of the pieces of property lying in a given taxing jurisdiction, it may be said that the agency makes a fundamental error, for no such values may be claimed to exist. Such, however, would be a criticism of the attempted justification and not necessarily a criticism of the formula itself. If all such formulae are *fundamentally* incorrect because of the fact that the question itself is by nature unanswerable, it is meaningless to insist that one formula is *more* fundamentally incorrect than another. The formula can be justified or condemned only on the basis of the standards of administrative procedure discussed above.

In this sense, there are no particular criticisms to be offered against the process of *interstate* allocation as applied to those companies whose property is of a character to require this process. At present the Valuation Division appears to make use of allocation formulae that are commonly accepted and that are used by many other states. The present criticisms are directed against the *intrastate* allocation techniques used by the Valuation Division. As described in Chapter XIII, the basic allocation theory adopted by the Valuation Division is one that attempts to allocate the unit value attributable to the California property of the assessee according to the distribution of the figures for the reproduction cost new less depreciation for specific items of property, with these figures adjusted for an indefinable element of earnings presumed to be associated with these items of property. The criticism offered here is not directed against the "reproduction-cost" formula itself, but against the adjustment of that formula. There is, to be sure, a question as to the relative advantages of a "reproduction-cost" formula as opposed to an "historical-cost" formula of the same general type, but no particular preference is expressed on this matter in this report. As described elsewhere in the report, the cost formulae in general have the advantage (over other formulae based upon physical measurement such as miles of wire, miles of track, and so on) of being capable of direct association with every item of physical property in the system, and are, in addition, relatively neutral in their allocation effects. To a large extent, however, this neutrality is lost in the adjustments introduced by the Valuation Division in the intrastate allocation of unit value. When such adjustments are made, the allocation process is no longer administratively convenient, for each item of property must be examined in a new light, a light that is expected to indicate the contribution which each item of property is capable of making to the total earnings of the system. Even more important, however, is the fact that, with such adjustments, the process no longer conforms to the administratively important "rule of objectivity." Such adjustments as are attempted by the Valuation Division in this matter are incapable of quantification and are consequently incapable of documentation. It is strange that so little attention has been paid to this intrastate allocation process in the current equalization controversy in California, for the importance of the step, in terms of the issue of intercounty equalization, is clear. The subjectivity of the process would, for example, permit an allocation of a relatively large amount of the unit value of a given public utility to those taxing jurisdictions with relatively low tax rates, with consequent effects, not only upon the tax burden of the public utility enterprise, but upon the distribution of state funds to local districts as well. *It must be emphasized that no such tendencies have been discovered in the present investigation,* and that these comments are not introduced as charges. They are introduced merely to illustrate one of the dangers of subjectivity at this level of the assessment process, and to express a strong preference for an allocation formula which, in the necessary absence of logical justification, is at least capable of objective and uniform application to all companies and to all areas in the State.

The second question that was posed in Chapter IX with respect to the current practices of the Valuation Division of the State Board of Equalization related to the *implementation* of the broad theoretical purposes discussed above. The difference between these first two questions is strictly one of convenience, for they are both part of the larger question regarding the logic with which the Valuation Division pursues the final assessment figures. The present problem, however, is more concerned with the manipulation of the raw data in the construction of the evidences of value and in the various other ancillary processes than in the concept of value itself. Many of the minor calculations were discussed and evaluated in a brief way in the earlier chapters as part of the explanation of the procedures used by the Valuation Division and it is not necessary to treat these in further detail at this point. For the most part, the evaluation is restricted to the more important processes.

The first problems of this character are those associated with the calculation of the earnings evidence of unit value. In these calculations the Valuation Division has made important changes over the two-year period of the present study, and, for the most part, these changes represent substantial improvements over the old methods. There can be no question, for example, but that the new attempts to determine an interest rate for capitalization purposes by a specific examination of the financial environment of each of the companies (where possible) is a marked improvement over the previous system of merely *assuming* one or two capitalization rates for all companies. In view of the theoretical problems involved in such computations, it is too much to expect perfection of these techniques, although it is not too much to expect that further experience in this area by the Valuation Division will yield a clarification of the techniques and an improvement of the results. The attempts by the Valuation Division to refine the methods of taking account of income taxes in the earnings calculations were also noted in earlier chapters of this report. Although it is readily admitted that some adjustment in the income tax figures carried in the income statement of the company is often essential, it is by no means clear that the technique of adjustment introduced by the Valuation Division in the 1952 assessment is the best that might be devised. In view of the large area of uncertainty that surrounds many other elements in the calculations, it may be that the peculiarities of tax accounting are subject to much simpler and much more arbitrary adjustment by the potential purchaser than that contemplated by the Valuation Division. It may be, in other words, that the present refinement in the calculations is an over-refinement. No thorough analysis has been made of this point, however, so that a definite approval or disapproval of the new techniques of the Valuation Division is unwarranted at this time. The same uncertainty of evaluation is not associated with the methods used by the Valuation Division to take account of the depreciation element. It is commonly recognized that, even for public utility enterprises, the system of accounting employed by many companies for the determination of annual depreciation charges is often extremely arbitrary and little representative of the "real" depreciation that takes place in any one accounting period. Furthermore, it appears to be fair to suppose that any individual (or corporation) interested in purchasing an entire public utility system would also be interested in employing a large engineering staff preparatory to the purchase in an attempt to determine the state of the physical plant, its operating characteristics, and its potential life. The only other substantive element in the methods of the Valuation Division is the use of the so-called "sinking-fund" method, as described in Chapter IX, and this method seems to be as acceptable as any others that have from time to time been suggested. The device of including the depreciation element in the capitalization rate rather than in the determination of the net income figure is merely a computational variation and does not require critical comment. For the rest, the techniques and the relative reputability of each of the basic evidences of value. But if this latter course of action were pursued, there would be no need to compute the other, alternative weighting systems in the first place. We are thus, for the moment, left with the conclusion that the mere act of computing a *series* of weighting systems is indicative, not simply of uncertainty on the part of the Valuation Division, but of an attempt to rationalize a unit value chosen by quite different techniques. It is obvious, however, that the so-called "weighting system" is *not* an integral part of the process of final unit value determination, even in the sense of its being a rationalization of a predetermined unit value. It represents merely the advance calculation of a series of figures that will be useful in the subjective decision and in the conversations between the officials of the Valuation Division and the officials of the companies. It is at this facet of the process that the present critical remarks are aimed.

In the absence of specific evidence to the contrary, there is a strong presumption in favor of a simple average of the several evidences of value. In view of the earlier analysis regarding the relevance of the several "evidence" figures considered by the Valuation Division, this would imply the use of a simple average of a *single* figure to represent the earnings evidence and a *single* figure to represent the stock and debt evidence, with no account being taken of the cost figures computed by the Valuation Division unless the figure for reproduction cost new less depreciation (adjusted as described in Chapter VII) were lower than the other two evidence figures. It is here claimed that a departure from this simple average should be contingent only upon an indication that either the stock and debt evidence or the earnings evidence is, *with reference to the company in question*, relatively deficient. For example, as stated in Chapter VIII, such an indication might relate to the percentage of the total stock and debt evidence represented by "market data" and the percentage represented by the book figures of the company. There is certainly nothing that requires the uniform application of a single formula to all companies, but there is a clear requirement that the process be made as objective as possible and that the subjective elements that remain be exposed rather than buried. Rough calculations incorporating these ideas are presented later in the present chapter.

With one or two exceptions, this report has been concerned entirely with the problem of determining the unit value of the *operative* property of the public utility enterprises selected for the sample. It has not been concerned, except for the broadest theoretical references, with the valuation of the nonoperative physical property; the solvent credits that are subject to special consideration in the tax laws; the property leased by the assessee from other individuals or companies; or the amount of money held by the assessee on assessment day. The omission of these points from the study was stated, in Chapter II, as one of the important limitations made necessary by time and resources. It is important to recognize these as open questions from the point of view of the present evaluation. No data have been collected in the process of this study that would indicate either a suitable or an unsuitable treatment of these other property categories by the Valuation Division of the State Board of Equalization.

In earlier sections of the present chapter, reference was made to the process of allocating the unit value of the operative property to the various taxing jurisdictions within the State, and certain criticisms were introduced on broad theoretical grounds. Two additional criticisms seem warranted in the present context, in terms of the techniques by which the Valuation Division implements the intrastate allocation theory which it has adopted. Each is discussed in Chapter XIII of this report and is reproduced here primarily for purposes of summarization and emphasis. The first relates to the treatment of the land items of property in the intrastate allocation process. For all of the companies in the sample selected for this study, with the exception of the two railroad enterprises, the Valuation Division first determined the total appraised value of the land owned by the company and subtracted this from the total unit value of the operative property. The land items were then "allocated" to the separate taxing jurisdictions by multiplying the separate appraised values by .500 and inserting the result on the assessment rolls. The allocation formula was then applied to the *remainder* of the operative property. It was also found in Chapter XIII that the appraised value of land was determined by an actual examination of the property every four or five years and the analysis of surrounding land values. At the moment, no criticism is directed toward these appraised values themselves. The present discussion is concerned with the fact that land is given special treatment in the allocation process as compared with other types of property, and with the distortions that result from this special treatment.

The appraised value of a parcel of land in the utility system is comparable to the figure for reproduction cost new less depreciation for the improvements or personal property, and the total appraised value of all land in the system is part of the total reproduction cost new less depreciation figure for the enterprise as a whole. If the adjustments to the basic allocation formula described above are, for the moment, neglected, the intrastate allocation technique consists simply in the computation of the ratio of the unit value of the property to the total reproduction cost new less depreciation of the property and the application of this ratio to the figure for reproduction cost new less depreciation associated with each item of property. However the ratios are applied, the final "market value" figures associated with each item of property must add up to the computed unit value. If, for example, the ratio of the unit value of the enterprise to the total reproduction cost new less depreciation of the enterprise were .70, the application of the .70 ratio to each of the individual reproduction cost new less depreciation figures that make up the total would result in the unit value if all of the individual "market value" figures were added. However, if the land items are "valued" according to their *full* "reproduction cost new less depreciation" figures (that is, at their appraised values), the remainder of the unit value must be allocated at something less than the .70 ratio. The significance of this kind of allocation pattern is obvious, for if a given taxing jurisdiction contains a relatively large amount of the land of the assessee the amount of unit value allocated to that jurisdiction will also be relatively large. Conversely, if a given taxing jurisdiction contains a relatively large amount of the improvements and personal property of the assessee the amount of unit value allocated to that jurisdiction will be relatively small. Unless it can be shown that land in general contributes more to the unit value than do the improvements and the personal property, the allocation formula must be judged to be faulty in this respect. There is, in other words, a strong case to be made for a uniform and nondiscriminatory application of the "reproduction-cost" formula.

Much the same argument is involved in the second specific criticism of the allocation technique. As pointed out in Chapter XIII, the Valuation Division computes the reproduction cost new less depreciation figures for the individual items of property in its periodic "reproduction cost studies." Such elaborate studies clearly cannot be completed every year for every company subject to such assessment, so that there is often a time lag between the reference dates of the reproduction cost figures used in the formula and the unit value figure that is to be allocated. It would be desirable, of course, for the unit value figure and the reproduction cost new less depreciation figures to relate to the same point in time, but it is by no means disastrous if they do not. A thoroughly acceptable allocation could be effected if the lag were as much as five or six years, if, of course, account were taken of any intervening additions and retirements. The important thing is that all of the reproduction cost new less depreciation figures should relate to the same point in time. Unfortunately, in the methods used by the Valuation Division they do not. For the large public utility enterprises it is impossible to complete the "reproduction cost study" in any one year, so that the collected figures relate, in practice, to a series of years. Furthermore, it seems that the Valuation Division makes such studies at varying intervals for different types of property. It would be possible, with the use of an index number "factoring up" process, to make the individual figures comparable with respect to their time of reference. Instead, the Valuation Division attempts to make use of the *latest actual* figures for each type of property. Once again, this device has the effect of distorting the allocation pattern, sometimes to a very marked extent. In this case, of course, when reproduction cost new less depreciation figures have been increasing steadily over a period of years, the unit value of the enterprise tends to be over-allocated to those types of property (and to the taxing jurisdictions that contain these types) that have been most recently subject to scrutiny. Once again, a strong argument is presented for a uniform and nondiscriminatory application of the "reproduction-cost" formula.

It has become apparent in the process of the present study, that a good deal of misconception surrounds this allocation phase of the Valuation Division's work. As a result, it seems appropriate to pursue this problem of the intrastate allocation of the unit value one step further. This is done with a hypothetical illustration, the substance of which is shown in Table I, and which is designed to show up the differences between the ratios that are used in the allocation process and the ratios that may legitimately be used to effect a comparison of assessed values and "market values." It is the latter ratio, of course, that has direct meaning for the problem of equalization, although the two kinds of ratios are often confused. Unfortunately, the intrastate allocation system used by the State Board of Equalization does little to remove this confusion.

Table I is constructed on the following assumptions:

1. The Unit Value of the enterprise has been determined, by techniques already described, to be $140,000,000.
2. The total Reproduction Cost New Less Depreciation of the enterprise has been determined to be $200,000,000; with $10,000,000 of this figure representing the appraised value of the land owned by the company; with $100,000,000 of the total representing the reproduction cost new less depreciation of the improvements; and with the remaining $90,000,000 representing the reproduction cost new less depreciation of the personal property.
3. The Valuation Division allocates land to the taxing districts in the State at 100 percent of the appraised value of such land.
4. The Valuation Division allocates personal property at 90 percent of its reproduction cost new less depreciation.
5. The Valuation Division allocates improvements at whatever percentage is required to make the total allocated value equal to the unit value of $140,000,000, in this case, 49 percent.
6. The Valuation Division determines the *assessed* value of each class of property by multiplying each of the *allocated* figures by .500.

It must be emphasized once again that the entire illustration is hypothetical and is designed to do nothing more than illustrate the *principle* of the variable allocation ratio and its attendant difficulties. There is no particular significance to the assumption that the lowest of the allocation ratios has been applied to the improvements rather than to the personal property, although the 100 percent allocation ratio applied to land does represent the present methods of the Valuation Division.

With a total reproduction cost new less depreciation for the entire enterprise of $200,000,000 and a computed unit value of $140,000,000, it is obvious that the basic "allocation ratio" is .70. Column 2 of Table I shows the result of applying this ratio uniformly to all three classes of property; that is, each figure in Column 2 is merely 70 percent of the corresponding figure in Column 1. Column 3 of Table I shows the results of the application of the variable ratio as indicated in the and the relative reputability of each of the basic evidences of value. But if this latter course of action were pursued, there would be no need to compute the other, alternative weighting systems in the first place. We are thus, for the moment, left with the conclusion that the mere act of computing a *series* of weighting systems is indicative, not simply of uncertainty on the part of the Valuation Division, but of an attempt to rationalize a unit value chosen by quite different techniques. It is obvious, however, that the so-called "weighting system" is *not* an integral part of the process of final unit value determination, even in the sense of its being a rationalization of a predetermined unit value. It represents merely the advance calculation of a series of figures that will be useful in the subjective decision and in the conversations between the officials of the Valuation Division and the officials of the companies. It is at this facet of the process that the present critical remarks are aimed.

In the absence of specific evidence to the contrary, there is a strong presumption in favor of a simple average of the several evidences of value. In view of the earlier analysis regarding the relevance of the several "evidence" figures considered by the Valuation Division, this would imply the use of a simple average of a *single* figure to represent the earnings evidence and a *single* figure to represent the stock and debt evidence, with no account being taken of the cost figures computed by the Valuation Division unless the figure for reproduction cost new less depreciation (adjusted as described in Chapter VII) were lower than the other two evidence figures. It is here claimed that a departure from this simple average should be contingent only upon an indication that either the stock and debt evidence or the earnings evidence is, *with reference to the company in question*, relatively deficient. For example, as stated in Chapter VIII, such an indication might relate to the percentage of the total stock and debt evidence represented by "market data" and the percentage represented by the book figures of the company. There is certainly nothing that requires the uniform application of a single formula to all companies, but there is a clear requirement that the process be made as objective as possible and that the subjective elements that remain be exposed rather than buried. Rough calculations incorporating these ideas are presented later in the present chapter.

With one or two exceptions, this report has been concerned entirely with the problem of determining the unit value of the *operative* property of the public utility enterprises selected for the sample. It has not been concerned, except for the broadest theoretical references, with the valuation of the nonoperative physical property; the solvent credits that are subject to special consideration in the tax laws; the property leased by the assessee from other individuals or companies; or the amount of money held by the assessee on assessment day. The omission of these points from the study was stated, in Chapter II, as one of the important limitations made necessary by time and resources. It is important to recognize these as open questions from the point of view of the present evaluation. No data have been collected in the course of this study that would indicate either [illegible] or an acceptable treatment of these other property categories by the Valuation Division of the State Board of Equalization.

In earlier sections of the present chapter, reference was made to the process of allocating the unit value of the operative property to the various taxing jurisdictions within the state, and certain criticisms were introduced on broad theoretical grounds. Two additional criticisms seem warranted in the present context, in terms of the technique by which the Valuation Division implements the [illegible] allocation theory which it has adopted. Both are discussed in Chapter XIII of this report and are reproduced here primarily for purposes of summarization and emphasis. The first relates to the treatment of the land items of property in the intrastate allocation process. For all of the companies in the sample selected for the study, with the exception of the two railroad companies, the Valuation Division first determines the total appraised value of the land owned by the company and subtracts this from the total unit value of the operative property. The land items were then "allocated" to the separate taxing jurisdictions by multiplying the separate appraised values by [illegible] and inserting the result on the assessment rolls. The allocation formula was then applied to the remainder of the operative property. It was also found in Chapter XIII that the appraised value of land was determined by an actual examination of the property every four or five years and the analysis of surrounding land sales. At the moment, no criticism is directed toward these appraised values themselves. The present discussion is concerned with the fact that land is given special treatment in the allocation process as compared with other types of property, and with the distortions that result from this special treatment.

The appraised value of a parcel of land in the utility system is comparable to the figure for reproduction cost new less depreciation for the improvements or personal property, and the total appraised value of all land in the system is part of the total reproduction cost new less depreciation figure for the enterprise as a whole. If the adjustments to the basic allocation formula described above are, for the moment, neglected, the intrastate allocation technique consists simply in the computation of the ratio of the unit value of the property to the total reproduction cost new less depreciation of the property and the application of this ratio to the figure for reproduction cost new less depreciation associated with each item of property. However the ratios are applied, the final "market value" figures associated with each item of property must add up to the computed unit value. If, for example, the ratio of the unit value of the enterprise to the total reproduction cost new less depreciation of the enterprise we application of the .70 ratio to eac reproduction cost new less de make up the total would re of the individual "marke However, if the land ite their *full* "reproducti figures (that is, at their appraised values), the remainder of the unit value must be allocated at something less than the .70 ratio. The significance of this kind of allocation pattern is obvious, for if a given taxing jurisdiction contains a relatively large amount of the land of the assessee the amount of unit value allocated to that jurisdiction will also be relatively large. Conversely, if a given taxing jurisdiction contains a relatively large amount of the improvements and personal property of the assessee the amount of unit value allocated to that jurisdiction will be relatively small. Unless it can be shown that land in general contributes more to the unit value than do the improvements and the personal property, the allocation formula must be judged to be faulty in this respect. There is, in other words, a strong case to be made for a uniform and nondiscriminatory application of the "reproduction-cost" formula.

Much the same argument is involved in the second specific criticism of the allocation technique. As pointed out in Chapter XIII, the Valuation Division computes the reproduction cost new less depreciation figures for the individual items of property in its periodic "reproduction cost studies." Such elaborate studies clearly cannot be completed every year for every company subject to such assessment so that there is often a time lag between the reference dates of the reproduction cost figures used in the formula and the unit value figure that is to be allocated. It would be desirable, of course, for the unit value figure and the reproduction cost new less depreciation figures to relate to the same point in time, but it is by no means disastrous if they do not. A thoroughly acceptable allocation could be effected if the lag were as much as five or six years, if, of course, account were taken of any intervening additions and retirements. The important thing is that all of the reproduction cost new less depreciation figures should relate to the same point in time. Unfortunately, in the methods used by the Valuation Division they do not. For the large public utility enterprises it is impossible to complete the "reproduction cost study" in any one year, so that the collected figures relate, in practice, to a series of years. Furthermore, it seems that the Valuation Division makes such studies at varying intervals for different types of property. It would be possible, with the use of an index number "factoring up" process, to make the individual figures comparable with respect to their time of reference. Instead, the Valuation Division attempts to make use of the *latest actual* figures for each type of property. Once again, this device has the effect of distorting the allocation pattern, sometimes to a very marked extent. In this case, of course, when repro[illegible] tion cost new less depreciation figures [illegible] creasing steadily over a period of [illegible] of the enterprise tends to be [illegible] types of property (and to the [illegible] contain these types) that [illegible] ject to scrutiny. Once a[illegible] sented for a unif[illegible] tion of the "repr[illegible]

It has become apparent in the process of the present study, that a good deal of misconception surrounds this allocation phase of the Valuation Division's work. As a result, it seems appropriate to pursue this problem of the intrastate allocation of the unit value one step further. This is done with a hypothetical illustration, the substance of which is shown in Table I, and which is designed to show up the differences between the ratios that are used in the allocation process and the ratios that may legitimately be used to effect a comparison of assessed values and "market values." It is the latter ratio, of course, that has direct meaning for the problem of equalization, although the two kinds of ratios are often confused. Unfortunately, the intrastate allocation system used by the State Board of Equalization does little to remove this confusion.

Table I is constructed on the following assumptions:

1. The Unit Value of the enterprise has been determined, by techniques already described, to be $140,000,000.

2. The total Reproduction Cost New Less Depreciation of the enterprise has been determined to be $200,000,000; with $10,000,000 of this figure representing the appraised value of the land owned by the company, with $100,000,000 of the total representing the reproduction cost new less depreciation of the improvements; and with the remaining $90,000,000 representing the reproduction cost new less depreciation of the personal property.

3. The Valuation Division allocates land to the taxing districts in the State at 100 percent of the appraised value of such land.

4. The Valuation Division allocates personal property at 90 percent of its reproduction cost new less depreciation.

5. The Valuation Division allocates improvements at whatever percentage is required to make the total allocated value equal to the unit value of $140,000,000; in this case, 49 percent.

6. The Valuation Division determines the assessed value of each class of property by multiplying each of the *allocated* figures by .500.

It must be emphasized once again that the entire illustration is hypothetical and is designed to do nothing more than illustrate the *principle* of the variable allocation ratio and its attendant difficulties. [illegible] no particular significance to the assumption that [illegible] lowest of the allocation ratios has been assigned [illegible] improvements rather than to the personal [illegible] although the 100 percent allocation [illegible] land [illegible] the present [illegible] de[illegible] [illegible] reprod[illegible] entire [illegible] unit [illegible] phone [illegible] bas[illegible] [illegible] this chapter [illegible] porate [illegible] at various [illegible] culations for [illegible]

TABLE I

HYPOTHETICAL ALLOCATION OF UNIT VALUE BY THE "VARIABLE RATIO" METHOD AND THE "UNIFORM RATIO" METHOD

Type of property	*Reproduction cost new less depreciation* *(1)*	*"Market values" with uniform ratios* *(2)*	*"Market values" with variable ratios* *(3)*	*Assessed values with variable ratios* *(4)*	*Assessed values as a percentage of uniform ratio "market values"* *(5)*	*Assessed values as a percentage of reproduction cost new less depreciation* *(6)*
Land	$10,000,000	$7,000,000	$10,000,000	$5,000,000	71.43	50.00
Improvements	100,000,000	70,000,000	49,000,000	24,500,000	35.00	24.50
Personal property	90,000,000	63,000,000	81,000,000	40,500,000	64.28	25.00
Totals	$200,000,000	$140,000,000	$140,000,000	$70,000,000	50.00	35.00

assumptions above. It can be seen that the total of Column 3 is the same as the total of Column 2, both being equal to the unit value of this enterprise. Column 4 of Table I shows the *assessed* values for each type of property, as these are determined from the figures in Column 3. Each figure in Column 4 (including the total) is merely 50 percent of each figure in Column 3. Column 5 of Table I shows, with the use of percentages, the comparison of the assessed values that are associated with the variable ratio method and the "market values" as allocated by the uniform ratio method. It is, of course, claimed that all figures in Column 5 *should be* equal to 50 percent, while, in fact, *only the total* is equal to 50 percent. Column 6 of Table I shows the assessed values of each class of property as a percentage of the reproduction cost new less depreciation figures shown in Column 1. The significance of this column is discussed below.

The important "misconception" mentioned above is the belief that it is possible to determine the ratio of assessed value to market value used by the Valuation Division of the State Board of Equalization by a direct appraisal of individual items of property in a given public utility system. This belief represents a misconception for several reasons, one of which comes from a different meaning of the term "market value" that is implicit in the idea, and others of which come from the variable ratio method of allocation used by the Valuation Division. Assume that an independent appraiser were interested in determining the ratio of assessed to market value that resulted from the assessment activities of the State Board of Equalization and that he determined to do this by physical appraisals of all of the improvements of the hypothetical public utility enterprise described in Table I. He might find that many of the improvements were recently constructed and that the cost of such construction were known and definite. With appropriate calculations he might then determine that the reproduction cost new less depreciation of these improvements was equal to $100,000,000, the same figure determined by the Valuation Division. If he believes that this figure measures the "value" of that property, he could then consult the assessment rolls, discover an assessed valuation of $24,500,000, and might conclude that the ratio of assessed to "market value" were 24.50 percent and not the 50 percent claimed by the State Board of Equalization. But this conclusion would be invalid for it would be subject to the several kinds of misconceptions mentioned above, not all of which, however, would be the fault of the appraiser.

The first, and perhaps the most important, of these misconceptions is the idea that the reproduction cost new less depreciation of the improvements is the market value of these improvements. This idea was fully explored in the earlier chapters of this report, where it was concluded that reproduction cost new less depreciation may not only be said not to *measure* market value, but that it may not even be said to be a good *evidence* of market value. (The Valuation Division apparently agrees with the first of these ideas but, because of the inclusion of the reproduction cost new less depreciation figures in the unit value computations, not with the second.) In other words, all of the percentage figures shown in Column 6 of Table I are inappropriate as measures of the ratio of assessed value to market value because, as such, they would contain the fundamental misconception that "cost" and "market value" are synonomous.

Any attempt to check the ratios of assessed value to market value resulting from the work of the Valuation Division would, however, be subject to a further note of confusion, even if it were realized that the "true" market value of the enterprise were $140,000,000 and not $200,000,000. This confusion would be bound to arise *unless the comparison were restricted to the total operative property of the enterprise.* If the investigator were fully apprised of both the total reproduction cost new less depreciation and the unit value, and if he were able to determine the reproduction cost new less depreciation of the individual improvements, he would still compute a ratio of assessed to market value for these improvements of only 35 percent (as shown in Column 5 of Table I). Although this low ratio is compensated for by the high ratios on land and personal property, this fact would not be obvious if the investigation were restricted to the improvements. It is claimed in this report that it *should* be possible to determine the ratio of assessed to market value by individual appraisals if both the unit value and the reproduction cost new less depreciation for the entire enterprise are known. This, of course, could only be done if the Valuation Division made use of the uniform ratio method of allocating the unit value to the various types of property and the various code areas within the State.

If, then, it is desired to check the ratios of assessed to market value through an observation of individual items of property, the figure of 24.50 percent for the improvements shown in Column 6 of Table I could be misleading for the following reasons:

1. The figures for reproduction cost new less depreciation are not equal to the market value figures;

2. The allocation ratio for *land* is relatively high because of the allocation techniques of the Valuation Division; and

3. The allocation ratio for *personal property* is relatively high because (a) the Valuation Division may have made an adjustment for earnings that are assumed to be associated with specific items of property, and (b) the "reproduction cost studies" may have been made at different times for personal property and improvements. The first of these difficulties is avoided by considering the figures of Column 5 rather than the figures of Column 6. In other words, in the case of improvements, the fundamental misconception regarding the meaning of the term "value" accounts, in this hypothetical illustration, for 10.5 percentage points of the difference. The second and third difficulties noted above are, however, integral parts of the present allocation system. *The difference between the ratio figures shown in Column 5 of Table I indicates either that the Valuation Division must be criticized for its intrastate allocation techniques, or that any question regarding the ratio of assessed to market value must relate only to the unit value of the enterprise as a whole.* This point is emphasized because it is felt that much of the present controversy that is concerned with the *valuations* of the State Board of Equalization is, in reality, concerned with the *allocations* of the State Board of Equalization. Unfortunately, a good deal more work is required before the hypothetical illustration manufactured in Table I can be transformed into a body of factual evidence.

Up to this point, two of the five questions posed in Chapter IX have been answered, albeit in a somewhat tentative manner. The remaining three questions are, for the most part, procedural in character, and can be answered rather quickly, although in a similarly tentative manner. The third question, for example, related to the possibility of mechanical error in the computations of the Valuation Division. Several such errors were exposed in the investigation and most of these were reported in the descriptive analyses of Chapters X, XI, and XII of this report. As pointed out in Chapter IX, such mechanical errors are to be expected in any process that is as complex and that involves the handling of as much data as the valuation of public utility property. None of the discovered errors involved any substantial amount of value, however, and the errors did not appear to be abnormally large in number. There was no discoverable pattern to the errors, for in some cases they resulted in an increase in the unit value and in other cases they resulted in a decrease in the unit value. In addition, the Valuation Division appears to employ a normally satisfactory system of checks to aid in the detection of such errors. Although it is always desirable to eliminate mechanical errors of this sort, those that were detected in the process of the present study were not such as to support any inferences unfavorable to the Valuation Division.

The fourth question posed in Chapter IX related to the exercise of judgment by the officials of the Valuation Division in matters substantive and in matters procedural. The question itself, of course, is directly related to the subjective elements that are recognized as an essential part of the valuation process and to the complexity of the process and the consequent need for administrative simplification. This question has been almost completely answered in other contexts in the present chapter. For the most part, the judgments appear to have been made with care and with a keen appreciation of the limitations of the decision. In various matters already discussed there appears to be a tendency to "disguise" some of the subjective elements in the process and to give some of the steps a more objective appearance than they can, in fact, be said to possess. This was particularly true of the final steps in the process of determining the unit value. There was no indication that this was a *conscious* "disguise," however, and the point is not advanced as a strong criticism. In the matter of procedural judgments, almost all of the answers are favorable to the Valuation Division. With the exception of the fact that some of the minor steps in the valuation process seem to be given undue attention, the Valuation Division appears to use excellent judgment in the allocation of its limited resources to the completion of tasks that are of almost unlimited complexity.

The fifth and final question advanced in Chapter IX related to the possibility that the Valuation Division of the State Board of Equalization was unduly influenced in its valuation activities by the public utility taxpayers. When this question was raised, however, it was also pointed out that no comprehensive investigation was possible in this area and that no final judgment could be expected. Within the limits of the present study, it may be stated that there were no indications of undue or successful persuasion on the part of the companies assessed by the Valuation Division. It is true, as was pointed out several times in the report, that the representatives of many of the larger utility enterprises and the officials of the Valuation Division meet in Sacramento prior to the final determination of the unit value. It was possible for staff members of the Senate Interim Committee on State and Local Taxation to attend several such meetings, to observe the minutes of other meetings, and to study the records of the Valuation Division both before and after such meetings, and it is here judged that they represent a normal and appropriate phase of the administration of the property tax in California. It is perhaps fair to judge that these final conversations are somewhat overemphasized and that this phase of the assessment process might be suitably reoriented by a more definite and objective use of the evidences of value in the determination of the unit value figure, as suggested above. The smaller companies appear to have every opportunity to make use of this informal hearing, although many choose to discuss the problems by telephone or by mail or not at all.

It was pointed out earlier in this chapter that an attempt would be made to incorporate some of the substantive suggestions included at various points in the report in a rough set of calculations for the several companies in the sample used in this study. Such calculations are shown below. It is first necessary, however, to describe the general character of these computations in order that their usefulness will not be overestimated. The computations are not designed to be ''valuations'' of the companies involved. In essence, they represent little more than illustrations of the manner in which some of the theoretical suggestions made throughout the report might be implemented. They do, to be sure, serve the subsidiary purpose of enabling a comparison of the results that would have been obtained if the Valuation Division had used these techniques and the results that were obtained by the Valuation Division, and, to this end, a final ''ratio'' is computed for each company. These ''ratios,'' however, should not be interpreted as indicating a comparison of ''assessed value to true value,'' for no great claims are made for the ''truth'' of the present computations. As far as they go, the computations are designed to stand on their own merits. But clearly they do not go far enough to justify the claim that they represent the true market value of any of the enterprises in the sample. In the preceding chapters many suggested revisions in the techniques of the Valuation Division have been presented and many suggestions have been made for minor adjustments in the data. Time and resources did not, however, permit the incorporation of all of these revisions, recalculations, and adjustments in the present analysis. The computations which follow are consequently restricted to one or two of the more important changes which it is felt might be made in the techniques of valuation. Many of the calculations, and all of the raw data, of the Valuation Division are accepted without question, although a thorough illustration of the points raised elsewhere in this report would indicate the need for an intensive study of some of these matters. The computations were made for the 1952 valuation only. No computations were made for the San Diego and Arizona Eastern Railway Company in view of the conclusion advanced earlier in this chapter that the ''subsidiary'' character of this company requires that it be valued as part of the Southern Pacific Company.

The major changes that were made in the valuation method are first described in summary and general form below. All these changes have been discussed in the present chapter and elsewhere in this report and need not be described in detail again. There are three major areas of change, described as follows:

1. *The Computation of the Earnings Evidence.* Only *one* net operating income figure was determined for each of the companies prior to the application of the capitalization rate. The only change involved in the computation of the earnings evidence related to this income figure. All other elements in the computation, such as adjustments, capitalization rate, expected future life of the property, interstate allocation factor, and so on, were extracted directly from the computations of the Valuation Division. No attempt was made to allow for the income tax factor in the capitalization rate as was done in the alternative calculations by the Valuation Division. This device is, as yet, largely untested and uncertain. The income figure used in the capitalization process was, however, calculated *before* depreciation and the appropriate capitalization rate was used to account for this element. The income figure itself was very roughly determined from an examination of the records of the Valuation Division for the five-year period preceding the date of valuation. The roughness of these calculations is not to be described as the result of limited time and limited resources but the result of a firm conviction that no more definite expressions are warranted. The annual figures for the net operating income before depreciation of all of the companies studied (with the exception of the Atchison, Topeka and Santa Fe Railway Company) show a fairly steady growth over the five-year period. In these cases it would be impossible to choose an income figure that was lower than the current realized income unless it were possible to estimate the presence of recessionary forces. No such forces are, at the present time, considered to be imminent. In almost all cases, the companies show marked tendencies to an expansion of the operating plant and equipment. As a result, the income figures selected for capitalization purposes were below the figures that would have been obtained by the fitting of a trend line and the projection of this line into the future. For the Atchison, Topeka and Santa Fe Railway Company, whose income figures over the five-year period showed no clear trend movement, the income figure selected for capitalization was the simple average of the five annual net operating income figures, calculated before depreciation. It is believed that, rough though these income calculations admittedly are, they represent more accurate estimates than the simple selection of either the one-year figure or the five-year average figure of realized income. The selection of a *single* figure to serve as the earnings evidence clearly shifts the burden of uncertainty to the computation of the evidence itself, and away from the final stage of the valuation process. This, too, conforms to suggestions made earlier in this chapter.

2. The Computation of the Stock and Debt Evidence. In view of the fact that no important faults were found with the manner in which the Valuation Division computed the stock and debt evidence, the one-year stock and debt figures, as adjusted, were extracted directly and without further computation. No use was made of the five-year stock and debt figures computed by the Valuation Division, however, in view of the earlier critical comments to the effect that these represent theoretically invalid evidences of value. In a sense, the acceptance of the one-year figures represents a compromise solution, for it was also claimed that the device of averaging market prices over the period of a year could produce a bias in one direction or the other. The only change, then, in the stock and debt evidence, is represented by the omission of the five-year data.

3. The final unit value was determined in each of the four cases (the Kern Mutual Telephone Company was excepted) by the use of a simple average of the earnings evidence and the stock and debt evidence. In none of these cases did the evidence appear to suggest that one or the other of these evidences should be given a relatively heavy weight in the averaging process. The

most significant change at this level of the computations was, of course, the complete disregard of the figures computed by the Valuation Division for historical cost new less depreciation and reproduction cost new less depreciation. The reasons for this omission of the cost figures have already been fully explained. The absence of any stock and debt evidence for the Kern Mutual Telephone Company obviously required the direct acceptance of the earnings evidence, so that no averaging process was possible in this case.

The results of these operations are shown below for each of the five companies. Further comments on the significance of the findings are presented at the conclusion of the computations.

I. Computations Relative to the Valuation of the Pacific Telephone and Telegraph Company, 1952

The following income figures are taken from Line 5, Exhibit XIV, Chapter X, for the Pacific Telephone and Telegraph Company:

Year	*Net operating income before depreciation*
1947	$47,100,680
1948	68,644,710
1949	80,440,259
1950	99,483,677
1951	101,709,900

Estimated annual net operating income before depreciation from existing property: $102,000,000.

Capitalization Rate: 8.892 percent. This capitalization rate is also taken from Chapter X, Exhibit XIV for the Pacific Telephone and Telegraph Company, and represents a basic rate of interest of 5.5 percent and an annuity rate of 3.392 percent computed for the 18-year life expectancy of the existing physical property.

Capitalized income	$1,147,098,510
Working capital (—)	24,550,839
Adjusted capitalized income	$1,122,547,671
Apply 76.1559% to remove value of property in other states	$854,886,282
Land reversion (+)	2,777,320
California value including motor vehicles	$857,663,602
Apply 97.29% to remove motor vehicles	$834,420,918

All of the adjustments shown above are taken from Chapter X, Exhibit XIV for the Pacific Telephone and Telegraph Company, and as a result, represent the computations of the Valuation Division of the State Board of Equalization. The only difference between the two sets of computations is the capitalized income figure to which these adjustments are applied.

Stock and debt evidence	$873,442,742
Earnings evidence	834,420,918
Total	$1,707,863,660
Simple average (unit value)	$853,931,830

The figure for the stock and debt evidence shown above is taken from Chapter X, Exhibit XVI for the Pacific Telephone and Telegraph Company, line 26, column 4. It represents an acceptance of all of the stock and debt computations of the Valuation Division on the one-year basis.

Exhibit XI for the Pacific Telephone and Telegraph Company, Chapter X, shows in line 13, column 1, that the unit value of the operative property for the California property of this company was determined, by the Valuation Division, to be $820,000,000. This is to be compared with the figure of $853,931,830 shown above as the result of the present computations. For convenience of later reference, the ratio of the unit value as determined by the Valuation Division to that determined by the present computations turns out to be **96.03** percent.

II. Computations Relative to the Valuation of the Kern Mutual Telephone Company, 1952

The following income figures are taken from line 4, Exhibit IX, Chapter X, for the Kern Mutual Telephone Company:

Year	*Net operating income before depreciation*
1947	$50,435
1948	67,636
1949	84,483
1950	113,336
1951	104,838

Estimated annual net operating income before depreciation from existing property: $106,000.

Capitalization Rate: 8.861 percent. This capitalization rate is also taken from Chapter X, Exhibit IX for the Kern Mutual Telephone Company, and represents a basic rate of interest of 6.500 percent and an annuity rate of 2.361 percent computed for the 21-year life expectancy of the existing physical property.

Capitalized income	$1,196,253
Working capital (—)	25,467
Land reversion (+)	4,711
California value including motor vehicles	$1,175,497
Apply 99.38% to remove motor vehicles	$1,168,209

All of the adjustments shown above are taken from Chapter X, Exhibit IX for the Kern Mutual Telephone Company and, as a result, represent the computations of the Valuation Division of the State Board of Equalization. Since there is no stock and debt evidence for this company, the computed figure is automatically the unit value of this enterprise.

Exhibit VI for the Kern Mutual Telephone Company, Chapter X, shows, in line 12, column 1 that the unit value of the operative property of this company was determined, by the Valuation Division, to be $1,250,000. This is to be compared with the figure of $1,168,209 shown above as the result of the present computations. For convenience of later reference, the ratio of the unit value as determined by the Valuation Division to that determined by the present computations turns out to be **107.00** percent.

III. Computations Relative to the Valuation of the Pacific Gas and Electric Company, 1952

The following income figures are taken from line 4, Exhibit XII, Chapter XI, for the Pacific Gas and Electric Company:

Year	*Net operating income before depreciation*
1947	$57,293,059
1948	60,763,042
1949	64,614,070
1950	78,884,005
1951	84,350,899

Estimated annual net operating income before depreciation from existing property: $85,500,000.

Capitalization Rate: 7.767 percent. This capitalization rate does not appear in Chapter XI, Exhibit XII for the Pacific Gas and Electric Company but was calculated by the Valuation Division. It represents a basic rate of interest of 5.500 percent and an annuity rate of 2.267 percent computed for the 23-year life expectancy of the existing physical property.

Capitalized income	$1,100,811,123
Working capital (—)	11,220,864
Land reversion (+)	10,093,600
Construction work in progress (+)	46,215,000
California value including motor vehicles	$1,145,898,859
Apply 99.15% to remove motor vehicles	$1,136,158,719

All of the adjustments shown above are taken from Chapter XI, Exhibit XII for the Pacific Gas and Electrict Company and, as a result, represent the computations of the Valuation Division of the State Board of Equalization.

Stock and debt evidence	$1,327,867,874
Earnings evidence	1,136,158,719
Total	$2,464,026,593
Simple average (unit value)	$1,232,013,296

The figure for the stock and debt evidence shown above is taken from Chapter XI, Exhibit XIV for the Pacific Gas and Electric Company, line 25, column 4. It represents an acceptance of all of the stock and debt computations of the Valuation Division on the one-year basis.

Exhibit IX for the Pacific Gas and Electric Company, Chapter XI, shows, in line 12, column 1 that the unit value of the operative property of this company was determined, by the Valuation Division, to be $1,225,000,000. This is to be compared with the figure of $1,232,013,296 shown above as the result of the present computations. For convenience of later reference, the ratio of the unit value as determined by the Valuation Division to that determined by the present computations turns out to be **99.43** percent.

IV. Computations relative to the Valuation of the San Diego Gas and Electric Company, 1952

The following income figures are taken from line 4, Exhibit XIII, Chapter XI, for the San Diego Gas and Electric Company:

Year	*Net operating income before depreciation*
1947	$5,043,479
1948	5,243,550
1949	5,894,635
1950	7,037,009
1951	7,601,192

Estimated annual net operating income before depreciation from existing property: $7,750,000.

Capitalization Rate: 8.962 percent. This capitalization rate is also taken from Chapter XI, Exhibit XIII for the San Diego Gas and Electric Company, and represents a basic interest rate of 6.00 percent and an annuity rate of 2.962 percent computed for the 19-year life expectancy of the existing physical property.

Capitalized income	$86,476,233
Working capital (—)	1,229,476
Land reversion (+)	598,448
Construction work in progress (+)	1,037,408
California value including motor vehicles	$86,882,613
Apply 98.88% to remove motor vehicles	$85,909,528

All of the adjustments above are taken from Chapter XI, Exhibit XIII for the San Diego Gas and Electric Company and, as a result, represent the computations of the Valuation Division of the State Board of Equalization.

Stock and debt evidence	$85,270,421
Earnings evidence	85,909,528
Total	$171,179,949
Simple average (unit value)	$85,589,975

The figure for the stock and debt evidence shown above is taken from Chapter XI, Exhibit XV for the San Diego Gas and Electric Company, line 22, column 4. It represents an acceptance of all of the stock and debt computations of the Valuation Division on the one-year basis.

Exhibit X for the San Diego Gas and Electric Company, Chapter XI, shows, in line 13, column 1 that the unit value of the operative property of this company was determined, by the Valuation Division, to be $83,000,000. This is to be compared with the figure of $85,589,975 shown above as the result of the present computations. For convenience of later reference, the ratio of the unit value as determined by the Valuation Division to that determined by the present computations turns out to be **96.97** percent.

V. Computations Relative to the Valuation of the Atchison, Topeka and Santa Fe Railway Company, 1952

The following income figures are taken from line 4, Exhibit XIV, Chapter XII, for the Atchison, Topeka and Santa Fe Railway Company:

Year	*Net operating income before depreciation*
1947	$79,158,145
1948	92,710,960
1949	80,860,318
1950	99,229,822
1951	83,044,465

Estimated annual net operating income before depreciation from existing property: $87,000,000.

Capitalization Rate: 8.581 percent. This capitalization rate is also taken from Chapter XII, Exhibit XIV for the Atchison, Topeka and Santa Fe Railway Company, and represents a basic rate of interest of

7.00 percent and an annuity rate of 1.581 percent compared for the 25-year life expectancy of the existing physical property.

Capitalized income	$1,013,867,847
Working capital (—)	33,256,909
Land reversion (+)	22,287,000
Adjusted capitalized income	$1,002,897,938
Apply 17.44% to remove value of property in other states	$174,905,400
California land reversion (+)	8,170,152
California value including motor vehicles	$183,075,552
Apply 99.88% to remove motor vehicles	$182,855,861

All of the adjustments shown above are taken from Chapter XII, Exhibit XIV for the Atchison, Topeka and Santa Fe Railway Company, and as a result, represent the computations of the Valuation Division of the State Board of Equalization.

Stock and debt evidence	$97,236,026
Earnings evidence	182,855,861
Total	$280,091,887
Simple average (unit value)	$140,045,944

The figure for the stock and debt evidence shown above is taken from Chapter XII, Exhibit XVI for the Atchison, Topeka and Santa Fe Railway Company, line 25, column 4. It represents an acceptance of all of the stock and debt computations of the Valuation Division on the one-year basis, except for the fact that it has been adjusted for a computational error.

Exhibit XI for the Atchison, Topeka and Santa Fe Railway Company, Chapter XII, shows in line 13, column 1, that the unit value of the operative property for the California property of this company was determined, by the Valuation Division, to be $140,000,000. This is to be compared with the figure of $140,045,944 shown above as the result of the present computations. For convenience of later reference, the ratio of the unit value as determined by the Valuation Division to that determined by the present computations turns out to be 99.97 percent.

When the markedly different character of the present computations, as compared with those of the Valuation Division, is considered, it is nothing short of astonishing that the unit value answers here computed should turn out to be almost identical to those of the Valuation Division. The ratios that describe this comparison are, to recapitulate, as follows: Pacific Telephone and Telegraph Company, 96.03 percent; Kern Mutual Telephone Company, 107.00 percent; Pacific Gas and Electric Company, 99.43 percent; San Diego Gas and Electric Company, 96.97 percent; and the Atchison, Topeka and Santa Fe Railway Company, 99.97 percent. To be sure, there are many points of similarity and even identity between the present computations and those of the Valuation Division. The capitalization rates are, in all cases, the same; as are all of the stock and debt figures (one-year basis) and all of the adjustments made to the earnings evidence. But the calculations shown above omit all reference to the cost "evidences," and these are uniformly high for all of the companies. The omission of these high figures is, of course, partially offset by the omission of the five-year computations for the stock and debt evidence and, in all cases but one, the five-year earnings evidence. Nevertheless, the substantial identity of the final results is indeed remarkable. This may indicate,

TABLE II

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF LAND OWNED BY THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, THE PACIFIC GAS AND ELECTRIC COMPANY, AND THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY IN ALAMEDA COUNTY

1952

Company and appraisal number	*Appraised value*	*Assessed value*	*Ratio of assessed value to appraised value*
Pacific Telephone and Telegraph Company	*(1)*	*(2)*	*(3)*
1	$20,000	$8,000	.4000
2	20,000	7,500	.3750
3	4,000	2,500	.6250
4	1,500	930	.6200
5	12,000	6,000	.5000
Totals	$57,500	$24,930	
Ratio of total assessed value to total appraised value			.4336
Average ratio			.5040
Pacific Gas and Electric Company			
1	$6,000	$1,330	.2217
2	1,200	750	.6250
3	277,500	116,000	.4180
4	482,296	167,500	.3473
5	96,210	46,500	.4833
6	19,500	8,800	.4513
7	23,000	8,500	.3696
8	20	10	.5000
9	200	100	.5000
10	15,890	2,620	.1649
11	1,700	520	.3059
12	7,500	1,910	.2547
Totals	$931,016	$354,540	
Ratio of total assessed value to total appraised value			.3808
Average ratio			.3868
Atchison, Topeka and Santa Fe Railway Company			
1	$113,260	$29,520	.2606
2	28,000	7,530	.2689
3	3,840	1,800	.4688
4	36,900	12,000	.3252
Totals	$182,000	$50,850	
Ratio of total assessed value to total appraised value			.2794
Average ratio			.3309
Ratio of grand total assessed value to grand total appraised value			.3676

of course, that, *in reality,* the Valuation Division made use of techniques that were similar to those used in the above computations, even though the documented evidence suggests otherwise; or it may mean that the intuitive element in the valuation process operated in such a way as to yield unit value results that closely approximated the results obtained by methods that are claimed to be more objective (or, at least, that show a greater confinement of the subjective elements). In any event, if the computations presented above are accepted, and if the theoretical argument that justifies these computations is accepted, any controversy regarding the unit value findings of the Valuation Division of the State Board of Equalization must be directed either toward those items that were *assumed* to be correct for purposes of the calculations or toward the *methods* used by the Valuation Division in arriving at the "correct" answers.

As explained earlier in this chapter, the one type of operative property that the Valuation Division claims to assess at 50 percent of its *appraised* value is land (excluding railroad right of way). It was also claimed in this report that this is an undesirable technique, in view of the distortions which it can produce in the intrastate allocation of the unit value. Nevertheless, it was felt to be desirable to test the appraisal activities of the Valuation Division with similarly conducted examinations of a series of land items of property. Unfortunately, however, it was not possible to make such a survey on a sufficiently broad and comprehensive basis to permit a generalization regarding these assessment ratios. A number of appraisals were carried out in Alameda County by a member of the staff of the Senate Interim Committee on State and Local Taxation. These were strictly in the nature of "spot checks," however, and cannot be said to establish a pattern that may be applied to all land appraisals by the Valuation Division. The results of these appraisals, together with the assessed values associated with each parcel of property and the resulting ratios of assessed value to appraised value, are shown in Table II for each of the three companies sampled. The appraisal numbers applied to these parcels of property are used for reference purposes only, and do not refer to specific locations within Alameda County. Beyond these warning comments, the data appear to speak for themselves.

DIVISION IV

LOCAL ASSESSMENTS IN CALIFORNIA

CHAPTER XV

INTERCOUNTY EQUALIZATION OF LOCALLY-ASSESSED PROPERTY: THE METHODS OF ANALYSIS

INTRODUCTION

In Chapter I of this report the whole problem of assessment equalization in California was discussed in terms of the broad, underlying factors which make such equalization necessary and which give meaning to the formal requirements of the California Constitution and the Revenue and Taxation Code. At that level of analysis the problem of equalization was given two basic references, the one concerned with the philosophical and constitutional considerations which provide a definition of equity; and the other concerned with the institutional and structural considerations which define the operative environment of the assessment process. Although these problems were stated in some detail in the introductory chapter, it was pointed out in Chapter II that no attempt would be made to explore them further in this report. At that point it was established that it is the purpose of this study to collect and interpret a set of facts relating only to the present status of equalization in California. This restricted purpose has been maintained thus far in the report. It is true, of course, that the study of public utility assessment practices presented such a formidable aspect that it was necessary to approach these factual elements through the back door. As a result, the third division of this report took the form of an analysis of the theoretical validity and the administrative practicability of the assessment techniques themselves rather than an independent survey calculated to test the final answers in quantitative terms. But circuitous though the path was, it was still designed to lead to a factual description of the results of the state assessment of public utility enterprises as one element of the equalization study.

In the fourth division of this report an attempt is made to arrive at the same kind of factual answers in the area of common property assessments by local officials. Such factual answers are, of course, essential if a comparison is to be made between the results of local assessment and the results of state assessment; they are equally essential if a comparison is to be made between the assessment results in one county and the assessment results in another county. In the present case, however, the methodology is more direct and involves the use of a more direct approach rather than the devious approach that was necessary in the public utility study. In other words, in the analysis of state assessments the emphasis was placed upon the techniques of assessment rather than upon the results of assessment; while in the analysis of local assessments the emphasis is placed upon the results of assessment rather than upon the techniques of assessment. This, in turn, means that the two areas of analysis are not fully comparable, at least in any clear, quantitative way.

It is obvious that the more direct approach to the problems of local assessment permits a much simpler exposition than was possible in the case of the public utility assessment study. Indeed, in the present case, all that is really required for a report of the conclusions of the study is a presentation of the market value findings, a listing of the assessed values associated with the same parcels of property, and the construction of the ratio of the latter to the former. This statistical presentation and a discussion of its significance constitute Chapter XVI of the report. The final data which apply to common property assessments are thus capable of both simple and quantitative presentation, while the final data which apply to public utility assessments requires the use of a narrative style and, at times, involves a rather complicated analysis. These differences of exposition, however, should not be taken to indicate the greater purity and conclusiveness of the findings in the common property case than in the public utility case. In Chapter III the tentative character of the findings in *both* of these major areas of analysis was exposed, albeit in a preparatory and incomplete way. The limitations which attach to the results of the study of local assessments are, for the most part, limitations of *method*. Since such limitations are often disguised in a quantitative expression, it is of the utmost importance that these methods be as thoroughly explored as possible prior to the presentation of the findings themselves. Only in this way can the tentative character of the final results be clearly appreciated. This is the sole purpose of the present chapter.

In Chapter IV of this report it was shown at some length that the several definitions of taxable value which appear in the California Constitution and the Revenue and Taxation Code can be reconciled only in terms of the economic concept of market value. Some of the implications of this concept were also developed in Chapter IV. Although much of that discussion was concerned with public utility property, it was also made clear that the analysis could apply equally well to the assessment of common property. It is not necessary further to labor these conceptual problems at this point, except to emphasize that it is once again the market value concept that establishes the frame of reference for a study of assessment equalization. At some point in the study it is necessary to express a relationship between this market value and assessed value for given parcels of property, and to do so in such a way that a meaningful generalization may be made for each county in the State and for the State as a whole. The State Board of Equalization has estimated that there are in excess of 4,500,000 parcels of real property in the State. An assessed value could, of course, be obtained for each one of these parcels and, where applicable, a distinction shown between the assessed value of the land and the assessed value of the improvements. For a study of common property equalization these assessed value figures are facts which require no interpretation. The only difficulties beyond this are the purely mechanical difficulties of transcribing the assessed values from the assessment rolls and relating them to the correct parcels of property. Clearly the same ease of acquisition cannot be claimed to be associated with the market values of the 4,500,000 parcels of real property estimated to be in the State. These data must be painstakingly acquired by the process of appraisal and in only a very limited number of cases may they be expected to appear as facts that require a mere transcription from some readily available records. The quantitative data which indicate the success or failure of the equalization process are, to be sure, the *ratios* of assessed value to market value, but the difficulties that arise in the *collection* of these data are concerned entirely with the market value element in the ratio expression. The appraisal process is so time-consuming, so expensive, and requires the services of so many expert appraisers that only a small percentage of the total of 4,500,000 can possibly be sampled in any one year. Thus, although an analysis of equalization in California is based upon a finite population, the absolute size of that population is so large and the difficulties of collecting the data by the appraisal technique are so great that the selection of a group of sample properties out of the total population is the first essential step in such an analysis.[1]

The process of sampling is logically followed by the actual work of collecting the data. In this case the collection takes the form of an appraisal of each item of property in the sample, in order to determine the market value of those items. In the statistical sense, the process of appraisal must be assumed to yield a set of *measurements,* although it must be recognized that, in fact, the process yields a set of *estimates.* If the problem were simply that of determining the average height of adult males in a given county by selecting a sample of the total male population of that county, the difficulties inherent in the sampling process and in generalizing the answers for the entire population would, of course, be part of the process. But there would be no necessary difficulties of measurement. For all practical purposes a yardstick measurement could be considered to yield an accurate set of measurements for those individuals who comprise the sample. If, however, the problem is that of determining the average ratio of assessed value to market value of all of the parcels of property in the state by selecting a sample of the total parcels of property in the population, the process is subject not only to the difficulties of sampling and generalizing but to the difficulties of measurement as well. The unfortunate fact cannot be denied that no absolute yardstick exists which may be used to measure the market value of a group of properties in the same sense that a yardstick does exist which may be used to measure the linear height of a group of individuals. This is one of the most severe difficulties in the analysis of assessment equalization. It also seems that this is the most generally recognized difficulty, and, because of the general willingness to emphasize the appraisal step in the process over and above the other processes, the warning must here be displayed that the difficulties of measurement are not the *only* difficulties.

The third step in the process involves the statistical *description* of the ratios in the sample. This is sometimes called the process of statistical deduction and involves the computation of such descriptive devices as the ratio mean, the ratio median, the ratio mode (if any), the ratio standard deviation, the range of the ratios, the quartile deviation of the ratios, and any other statistical devices which fit the case. This is, perhaps, the easiest step in the process, for there is no estimation involved, and the computations are supportable by the logic of simple arithmetic.

The fourth and last step in the process involves the use of the sample data to make statistical inferences about the entire population. This is sometimes called the process of statistical *induction* as distinct from the statistical deduction discussed in the preceding paragraph. It is this step that is most often neglected and yet its importance cannot be denied. In an equalization study such as this it is necessary to estimate the average ratio of assessed to market value for a given county as a whole (and, of course, for the State as a whole). But the only *factual* data available relate to the sample parcels studied. Even with carefully applied sampling techniques there is no assurance that the average of the sample is a good indication of the average of the total population. This fourth step, then, is used merely to establish the probable reliability of the sample data in the estimation of the characteristics of the total population. Although the processes of statistical induction cannot yield a *certain* measure of the validity of the sample, they must still be considered to be an essential preliminary to the publication of the final results. The values and hazards of the process of statistical induction are clearly described in Professor Mills' book entitled *Statistical Methods:*

> "* * * the conclusion of any induction holds only in terms of probabilities. For such a conclusion, by the very definition of an induction, applies to cases not included in the observations. As opposed to deductive reasoning, in which the conclusion is implicit in the premises, induction yields a conclusion going beyond the premises. When all the cases to be covered by the conclusions are included in the observations, the conclusion ceases to be an induction and becomes

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[1] The term "population" is used here and in subsequent discussions in the technical, statistical sense. It refers simply to all of the individual cases that *might* be included in the study. If the study is concerned with all of the parcels of real property in the entire state, the population would be 4,500,000 (or whatever the exact figure might be). If the study is confined to a given county, the term "population" must refer to the total number of parcels of real property in that county. If the subject of analysis is the ratios of assessed to market value on all residential property in a given county, the specific reference of the term "population" must be adjusted to suit the new interest. The term "universe" is sometimes used synonomously with the term "population." Thus, the term "sample" refers to a set of measurements which is some part of the total possible measurements; that is, some percentage of the population or universe. It is important to recognize, of course, that the character and adequacy of any sample cannot be established unless the boundaries of the population from which the sample is drawn are clearly delineated.

a descriptive statement. Accordingly, although induction is a highly fruitful means of adding to human knowledge, it is always hazardous. A leap in the dark is always involved, when we apply conclusions to cases not yet observed.''[2]

There are, then, four essential steps in the total process of ''discovering'' the status of equalization in California. Each of these steps involves a possible pitfall, any one of which could make the final data largely meaningless, even though highly scientific in appearance. To summarize, these four steps are (1) sampling; (2) measurement (that is, appraisal); (3) deduction (that is, description of the sample results); and (4) induction (that is, generalization from the sample to the total population).

From the point of view of the present study of assessment equalization, there were especial difficulties associated with the first of these steps. The selection of a group of sample properties which would be adequate to the purposes of an investigation as large as this is an extremely difficult and time-consuming task. Furthermore, it requires at some point in the process the kind of knowledge about the types of property and the special characteristics of properties in different geographical locations throughout the State that can only come from experience. The familiar limitations of time and resources, together with the fact that the necessary data were available in only relatively small quantities, meant that any sample chosen by the committee would be likely to be highly unsatisfactory in some important respects. Fortunately, however, the present study was not conducted in a total vacuum. In accordance with the requirements imposed by the Statutes of 1949, the State Board of Equalization had, through its Division of Assessment Standards, conducted a survey of common property assessments throughout the State. Although this sample had been selected approximately one year before the study of this committee began, it was decided to make use of this ''ready-made'' sample and to conduct the study on the admittedly tenuous assumption that the sample was adequate. In all of the *calculations*, this assumption of the adequacy of the sample has been maintained, although at several points it has been necessary to indicate the possible areas of sampling error.

The present study has thus leaned rather heavily, in the construction of its sample, upon the work done by the Division of Assessment Standards in its 1951 survey. To a lesser extent this was also true of some of the other steps in the analysis, although in still other steps the techniques appear to be markedly different. In any event, it is impossible to understand the methods used in the present study and the care with which the final results must be interpreted unless there is a clear understanding of the relationship between the methods of the State Board of Equalization and the methods of this committee and of the difficulties inherent in both. For these reasons, the description of the methods used by this committee is logically preceded by a description of the methods used by the State Board of Equalization. Although some comments and criticisms of the methods of the State Board of Equalization are offered in this discussion, the primary purpose of the ensuing remarks is the exposition of those elements that were extracted for use by this committee in the present study.

METHODS USED BY THE STATE BOARD OF EQUALIZATION IN THE 1951 SURVEY

Sampling

In December, 1951, the Division of Assessment Standards of the State Board of Equalization prepared and submitted to the Division of Budgets and Accounts, State Department of Finance, a study entitled ''Work Loads and Technical Personnel Requirements of the Division of Assessment Standards, State Board of Equalization.'' In this report, the Division of Assessment Standards was concerned, among other things, with a description of what it considered to be an adequate sample for the State as a whole and for each county in the State in order to determine the required assessment ratios for purposes of equalization. From other studies which the State Board of Equalization had been conducting since 1947, in pursuance of the requirements of Section 3693 of the Political Code (as added by Chapter 1523 of the Statutes of 1947), it had, by 1951, a fairly accurate estimate of the total number of parcels of real property in most counties of the State. These figures were collected in such a way as to permit a classification by type of property (residential, commercial, industrial, and so on); by class of property (land, improvements, and personal property); and by broad geographical location (inside incorporated cities and outside incorporated cities). *It is important to recognize that these data were all the factual information available to the Division of Assessment Standards in a form useful for sampling purposes, and of a type which did not involve the assumption that the division knew what the ratios were before it selected the sample.* Table I shows the total number of parcels of real and tangible personal property in the State as a whole broken down into the several types of property, together with the number of such parcels which the Division of Assessment Standards considered to represent an adequate sample for the State as a whole. Apparently the figures in column 2 of Table I were determined quite without reference to the number of appraisals that it was *possible* to complete (indeed, the figures of column 2 were used to support a budget request), and were based entirely upon some concept of the minimum standards of adequacy in the sampling operation.

Table I shows clearly that the Division of Assessment Standards considered a sample of one-half of 1 percent of the total parcels of real property to be an adequate sample for purposes of establishing the state-wide ratio of assessed to market value.[3] The table also shows that

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[2] Mills, F. C., *Statistical Methods*, Henry Holt and Company, New York, revised edition, 1938, pp. 454-455.

[3] In view of the fact that the survey conducted by this committee makes no mention of the personal property category, no reference is made to this class of property in the present discussion of the sampling techniques. It can be seen from Table I, however, that the Division of Assessment Standards considered a sample of .40 percent of the total estimated parcels of personal property to be an adequate test of the state-wide average ratio of assessed value to market value.

TABLE I

ESTIMATED NUMBER OF PARCELS OF REAL AND TANGIBLE PERSONAL PROPERTY IN THE STATE AS A WHOLE AND THE NUMBER OF PARCELS CONSIDERED TO REPRESENT AN ADEQUATE SAMPLE, BY TYPE OF PROPERTY, 1951

Type of Property	*Estimated Number of Parcels in the State* (1)	*Number of Parcels in an Adequate Sample* (2)	*Adequate Sample as a Percentage of Total Parcels* (3)
Residential and unclassified	2,438,201	11,687	0.48
Commercial	176,907	2,135	1.21
Farms	137,965	2,000	1.45
Industrial	23,332	551	2.36
Mines	782	59	7.54
Vacant land parcels	1,635,143	5,677	0.35
Possessory interests	14,668 [a]	203	1.38
Total real property	4,426,998 [b]	22,312 [b]	0.50
Personal property and fixtures	3,840,051	10,943	0.28
Total property	8,267,049 [c]	33,255	0.40

NOTES:

[a] The actual number of possessory interests is far greater than 14.668, but this figure does represent a reasonable estimate of the more important properties of this kind.

[b] In addition to those shown the Division of Assessment Standards estimated the total timber properties in the State to be 8,805 sections, of which 99 sections or 1.12 percent were considered to represent an adequate sample. The division estimated the oil and gas wells to be 29.488 and considered an adequate sample to consist of 89 fields. Since these figures are not comparable with the others in the table they are not included in the totals.

[c] Quantities of all properties are from the counts and estimates in the county assessment reports, with the exception of those for Los Angeles, San Francisco, Alameda, and San Diego Counties. Since the figures in the reports are as of various years from 1947 to 1951, and since considerable growth has taken place over this period, total real properties are estimated to be 4,500,000 and personal property to be 3,900,000 at the present time.

SOURCE: Division of Assessment Standards, State Board of Equalization, "Work Loads and Technical Personnel Requirements," December, 1951, typewritten, p. 16.

the division considered it desirable to select the sample in such a way that a larger percentage representation would be involved for those types of property with relatively few parcels than for those types of property with relatively many parcels. Thus, the type labeled ''Mines'' contains the smallest number of parcels in the total, the smallest absolute number of parcels in the sample, but the largest percentage representation in the sample. On the other hand, the type labeled ''Residential and Unclassified'' contains the largest number of parcels in the total, the largest absolute number of parcels in the sample, but the second smallest percentage representation in the sample. This sampling formula, by which a larger percentage is selected for the smaller categories, conforms in general to accepted sampling principles. However, it is interesting to notice that the inverse relationship between the sample percentage and the number of parcels in the category is not perfectly maintained in the sampling operations of the Division of Assessment Standards. If it were, the sample for residential property would show a smaller percentage to the total parcels of that type than would be sample for vacant land. Apparently the Division of Assessment Standards made use of some measure of the ''importance'' of the several categories other than that indicated by the *number of parcels* in each category. There is, in effect, an implicit weighting system in the sampling methods themselves. The fact that a weighting system is included in the sampling operation makes the sample itself somewhat suspect: the fact that the weighting system is *implicit* and disguised makes the sample a dangerous one to use for making estimations about the entire population of ratios for the State.

In sampling theory there are two kinds of operations that might be used in the present circumstances. The first of these is the operation called ''random sampling'' and the second is that called ''random stratified sampling.'' *In either operation the system of a random selection of specific items is essential if the sample is later to be taken to be representative of the population.* In the straight ''random'' sample, it is necessary to look at the entire population and to select a technique for choosing specific items out of that population that conforms as closely as possible to the laws of chance. In the present case, this technique would involve the consideration only of the total real property figure of 4,426,998 parcels and not of any breakdown of that total. Once it had been decided to sample one-half of 1 percent of that total, the specific items that would be included in the 22,500 parcel sample would have to be chosen at random. One of the hardest jobs in the accurate collection of sample statistics is the mechanical operation of selection in such a way as to assure the effectiveness of chance in the selection. Every parcel of property must be given an equal chance of being selected, regardless of the type of property, the class of property, or the location of the property. It is to be expected, of course, that if the controls are accurately established to assure the operation of chance selection, and if the total number of parcels in the population has been correctly determined, the parcels selected will fall into the several categories listed approximately in proportion to the total number of items in each category. A chance selection for the State as a whole would, in this case, involve the most difficult kind of mechanics. The common property assessment rolls of all 58 counties would have to be brought together as a first step. The actual process of selection would probably have to consist of the selection of one parcel out of every two hundred in an actual count, regardless of what kind of property was selected. This kind of sampling operation, mechanically difficult though it obviously is, could still be supported as a representative sample of the entire population of real property parcels in the State.

Although such a ''random sample'' can give acceptable sampling results, it is generally recognized in sampling theory that a carefully selected ''random stratified sample'' can give even more acceptable sampling results. The first thing that is necessary in this operation is the designation of the strata, whereby the total population of items are grouped into separate classes in such a way that each class contains a fairly large number of items and is clearly distinguishable from the other classes. One of the most important requirements in setting up the basic stratification is that there exist an exact count or a very good estimate of the number of items of property in each of the strata. Only in this way can it be determined how many items shall be selected from each group. It may be possible, for example, to devise an extremely large number of separate stratifications, based upon some preconception about the answers that are likely to appear. In the present case, for example, it may be imagined that the ratio of assessed to market value is higher for those properties that have a low market value than for those that have a high market value. But unless it is also possible to say with a good deal of precision how *many* "high value" properties there are in the population and how many "low value" properties, it is not possible to use this stratification without endangering the validity of the answers. Unless this additional information were available, there would be no way of knowing whether the proper *number* of parcels of each type had been selected. The process of sampling is not one that involves merely the selection of as many different types of property as possible, but one of determining the types according to definite information regarding the relationship between that type and the total population. An overstratification of a sample can, if the individual strata are based upon sheer guesswork or upon the vague notion that "we ought to have some of this in the sample" produce extremely misleading results. Although the delineation of *many* separate groups often gives the sample the appearance of representativeness and careful selection, it must be condemned as fundamentally invalid unless backed up by definite quantitative information and it must be viewed as containing all of the inadequacies of a biased selection. In the present case, the selection of the classes described in Table I seems quite appropriate. The figures in column 1 are, to be sure, estimates, but they appear to be reasonably good estimates. Although the figures are not shown here, it also seems appropriate to distinguish, within each of the classes shown in Table I, between those parcels located inside incorporated cities and those parcels located outside incorporated cities. This information, too, is factual and fairly easily obtained. It is difficult to see, however, how it is possible to make use of any finer classification, with the exception, of course, of the selection of all of these types by the 58 counties in which they lie. While it would be desirable to sample some properties of each class that have high market values, some that have low market values, and some that have medium market values, this kind of breakdown is clearly impossible in the present case. It is precisely these market values of the parcels of property in the State that must be determined. The determination can only take place *after* the sample has been chosen, and any attempt to make use of this breakdown *before* the sample is chosen represents the most questionable kind of sampling operation. If it *were* possible to say that a certain percentage of the residential properties inside the incorporated cities in Alameda County (for example) were in the "high market value" category, it would be possible to design a sample to fit this classification. But before it would be possible to determine this percentage, it would be necessary to know the total market value of all properties in Alameda County. If this latter information were available, there would clearly be no need to carry out the sample in the first place, because all of the data required to determine a ratio of assessed to market value for this county would already be at hand. The conscious selection of properties of different market values, then, involves the assumption that the investigator already knows the answers he is seeking to find with the use of the sampling operation. Similar difficulties attach to any attempts to distinguish in the sampling process between old residences and new residences. It may be quite reasonable to expect some difference in the ratios of assessed to market value between these two categories, but unless it is possible to say how *many* of the total properties are "new" and how *many* are "old," it is impossible to know how *many* of each type to include in the sample to make the sample representative. If more "new" properties are chosen than would be warranted by the real importance of this type in the total, the answers automatically contain a bias in the direction of the ratio of assessed to market value on these "new" properties. If *no* breakdown data for individual counties were available (similar to the breakdown data shown in Table I for the entire State), it would be necessary to insist that a straightforward random sample of the entire county be selected and that no notice be taken, either explicitly or implicitly, of the types or classes of property within the total. The fact that reasonably accurate data are available for the classes shown in Table I and for the other classes mentioned above justifies the use of the stratified sample. It does not justify any finer classification, however.

Once the classes have been selected it is necessary to determine the number of items to be selected in each class. The most common procedure is to select proportionately, that is, to determine the proportion of items in each class to the total population and then to apply that proportion to the total sample figure. If this had been done in the determination of the "adequate" sample shown in Table I, each figure in column 3 of the table would have been .5 percent. It is possible to justify the general procedure illustrated in Table I, however, by the theory mentioned above which holds that the larger the number of items in the class the smaller the necessary sample may be as a percentage of the total items in the class. This theory does not, however, justify the alteration of the *order* of the percentage representation.

A fundamental proposition in the theory of sampling is that once the number of items in each strata of the classification has been determined the individual items selected for the sample must be selected at random so that the laws of chance may be said to be operative. Any further distribution of the parcels by other classifications not represented will then depend upon chance and upon chance alone. It is often necessary to develop an elaborate system of controls to assure that chance is the only deciding factor, but unless it is possible to prove the effectiveness of these controls, the entire sampling operation must be subject to suspicion. It may be stated categorically that the expenditure of time and effort to assure the chance selection of individual items within a broad classification scheme is much more profitable and is much more likely to produce meaningful and accurate results than the expenditure of the same amount of time and effort in a conscious selection of items to fit a narrow classification scheme. As between the two approaches, the burden of proof always rests upon the investigator to indicate the operation of chance and not to indicate that he has been careful to select all possible types, sizes and values of properties.

When the size of the "adequate" state-wide sample had been established at 22,500 parcels, the Division of Assessment Standards proceeded to allocate the total to the 58 counties. Once again, this was done with a rough use of the "inverse ratio" technique, with the larger counties (as determined by the number of parcels of real property contained in each county) receiving a relatively small percentage of the total sample. In this allocation process, the vacant land was once again underemphasized, for the allocation was based primarily upon improved parcels. The allocation thus involved less than a one-half of 1 percent sampling of the *total* parcels in those counties that contained a relatively large amount of vacant land. The allocation of the total parcels to the several counties was followed by the same kind of breakdown for each county as that described in Table I. This process is illustrated in Table II for Imperial County. The same kind of illustration for all 58 counties is shown as part of the data of Appendix D. It must be remembered that these data still relate to the standards of "adequate" sampling established by the Division of Assessment Standards of the State Board of Equalization. They do *not* illustrate the sample that the Division of Assessment Standards actually made use of in the survey of 1951 or the survey of 1952. It should also be noted in Table II that one category, that labeled "Mines," shows only five items in the population. Since it would be impossible to select anything less than one in the sampling process, the selection of the minimum sample still involved a 20 percent sample. This seems to indicate that the Division of Assessment Standards should not have maintained this classification for Imperial County. Rather it should have combined the five mining parcels with, perhaps, the 102 industrial parcels and then conducted a random selection from the 107 items in that class. There is absolutely no reason why a classification system that is appropriate for the State as a whole is equally appropriate for any county in the State. With only five parcels in the total class and with the minimum restrictions mentioned above, the use of "Mines" as a separate category in Imperial County can hardly be said to permit a chance selection.

TABLE II

ESTIMATED NUMBER OF PARCELS OF REAL AND TANGIBLE PERSONAL PROPERTY IN IMPERIAL COUNTY AND THE NUMBER OF PARCELS CONSIDERED TO REPRESENT AN ADEQUATE SAMPLE, BY TYPE OF PROPERTY, 1951

Type of Property	*Estimated Number of Parcels in Imperial County* *(1)*	*Number of Parcels in an Adequate Sample*[a] *(2)*	*Adequate Sample as a Percent of Total Parcels* *(3)*
Residential and unclassified	6,264	130	2.07
Commercial	1,130	22	1.95
Farms	2,932	35	1.19
Industrial	102	8	7.84
Mines	5	1	20.00
Vacant land parcels	18,886	104	.55
Total real property	29,319	300	1.02
Personal property and fixtures	19,922	94	.47
Total property	49,241	394	.80

NOTE:

[a] In addition to the types shown, the Division of Assessment Standards considered it desirable to sample four possessory interests in Imperial County, although the total number of such possessory interests in the county was not known.

SOURCE: Division of Assessment Standards, State Board of Equalization, "Work Loads and Technical Personnel Requirements," December, 1951, typewritten, p. 35.

As pointed out above, these data were prepared by the Division of Assessment Standards, along with an indication of the estimated man-days of appraisal work that an "adequate" sampling would involve, as part of a report to the Division of Budgets and Accounts of the State Department of Finance. They are important only because they indicate what the Division of Assessment Standards considers to be an adequate sample for the State as a whole and for each county in the State, and not because they indicate the sample actually used by the division in its sample survey of 1951. The actual sample used by the division in 1951 was much smaller at all levels than that which the division indicated would represent an adequate test of assessment practices. It will be recalled, from the concluding remarks of Chapter I of this report, that the size of the actual sample was largely determined by the size of the appraisal staff made available to the Division of Assessment Standards by the budget appropriation of that year. For the State as a whole, the actual sample of 1951 was only 10.57 percent of the sample described by the division as "adequate," for it included only 2,380 percels of real property. As indicated earlier, the total number of real property parcels in the state-wide sample accounted for approximately one-twentieth of 1 percent of the real property parcels estimated to be in the State. Table III presents the same kind of data as were presented in Table I, except that column 2 of Table III indicates the parcels actually selected in the sample of 1951 rather than the parcels considered to represent an adequate sample. It was not possible, unfortunately, to preserve precisely the same breakdown of the actual sample as was shown in Table I for the "adequate" sample. For example, the Division of Assessment Standards did not choose to set up a separate category for vacant land, choosing rather to include this type in the other categories. As a result, only the final percentage figure is fully comparable with that for Table I. In addition to this difficulty with the allocation of the vacant land parcels, the types shown in Table I as "Mines" and "Possessory Interests" are combined and shown in Table III as "Special." In other counties (as illustrated in Appendix D) this "Special" category also includes timber, oil wells, gas wells, and so on. The category "Personal Property" has been dropped from Table III since it is not of interest in the description of the sample actually used by this committee. The Division of Assessment Standards did claim to sample some personal property but it was not possible to check on the amount or the type of this sample. It seems that it included mostly industrial personal property.

TABLE III

ESTIMATED NUMBER OF PARCELS OF REAL PROPERTY IN THE IN THE STATE AS A WHOLE AND NUMBER OF PARCELS SELECTED FOR SAMPLE BY THE DIVISION OF ASSESSMENT STANDARDS, BY TYPE OF PROPERTY, 1951

Type of Property	*Estimated Number of Parcels in the State* (1)	*Number of Parcels in Actual Sample* (2)	*Actual Sample as a Percent of Total Parcels*[a] (3)
Residential and unclassified	2,438,201	1,451	.06
Commercial	176,907	393	.22
Farms	137,965	408	.30
Industrial	23,332	91	.39
Special	15,450	37	.24
Subtotal	2,791,855	2,380	--
Vacant land parcels	1,635,143	----	--
Total real property	4,426,998	2,380	.05

NOTE:
[a] The Division of Assessment Standards did not distinguish between vacant land and improved land in this sample. At the same time, it was impossible to allocate the actual vacant land parcels shown in column 1 to the other categories of property. As a result, some of the percentage figures are overstated if they are interpreted net of vacant land items. The final percentage figure shown against "Total Real Property" is, of course, accurate.

SOURCE: Division of Assessment Standards, State Board of Equalization, work sheets.

Table IV is comparable (with the restrictions mentioned above) with Table II, for it shows the actual sample, by types of property, for Imperial County, expressed as a percentage of the total parcels of each type of property in the county. Once again, this table should be taken to be of illustrative value only. The comparable data for other counties are included in Appendix D.

TABLE IV

ESTIMATED NUMBER OF PARCELS OF REAL PROPERTY IN IMPERIAL COUNTY AND NUMBER OF PARCELS SELECTED FOR SAMPLE BY THE DIVISION OF ASSESSMENT STANDARDS, BY TYPE OF PROPERTY, 1951

Type of Property	*Estimated Number of Parcels in County* (1)	*Number of Parcels in Actual Sample* (2)	*Actual Sample as a Percent of Total Parcels*[a] (3)
Residential and unclassified	6,264	18	.29
Commercial	1,130	5	.44
Farm	2,932	13	.44
Industrial	102	1	.98
Special	5	--	--
Subtotal	10,433	37	--
Vacant land parcels	18,886	--	--
Total real property	29,319	37	.13

NOTE:
[a] The Division of Assessment Standards did not distinguish between vacant land and improved land in this sample. At the same time, it was impossible to allocate the actual vacant land parcel shown in column 1 to the other categories of property. As a result, some of the percentage figures are overstated if they are interpreted net of vacant land items. The final percentage figure shown against "Total Real Property" is, of course, accurate.

SOURCE: Division of Assessment Standards, State Board of Equalization, work sheets.

While in the case of the determination of the "adequate" sample the Division of Assessment Standards first determined the total number of appraisals that it would be *desirable* to conduct and then determined the total number of man-hours that it would be necessary to utilize, in the case of the actual sample the division clearly started with the number of man-hours at its disposal and then estimated the number of appraisals that it would be *possible to conduct*. Although, in this sense, the Division of Assessment Standards cannot be criticized for the smallness of the total sample finally used in the 1951 survey, it is nevertheless true that the sample was quite inadequate in size to support a legitimate generalization for the State as a whole. It might be supposed that, because of this inadequacy in the *number* of parcels sampled, the Division of Assessment Standards would have been even more careful to assure the reasonable representativeness of the sample, in a manner somewhat similar to that sketched out in the brief theoretical discussion above. It does appear that the division made attempts to make the sample as representative as possible, but the results, unfortunately, seem to show up an overstratification based upon imprecise data. The basic steps in the sampling process seem to have been the same as those described above with reference to the "adequate" sample. In other words, the Division of Assessment Standards first determined the total number of parcels that could be sampled in the entire State. This total was then allocated to the 58 counties by something approximating the "inverse ratio" method so that those counties with the larger number of total parcels received, percentagewise, a smaller number of parcels in the sample. Once again, this allocation seems to have been based primarily upon the improved parcels. The division then set up its basic stratification system for each county and, using the information similar to that of column 1 of Table IV, allocated the total sample for each county to the various strata. Even at this level, however, nothing resembling a formula appears to have been used and the results must be interpreted as little better than rough approximations to those that would have been obtained either by straight proportional sampling or by the "inverse ratio" method.

If the stratification had stopped at that point, and if there were evidence to show that the Division of Assessment Standards had then called upon the laws of chance to sample within the individual strata, it would probably have been possible to support the sample as reasonable, despite the insufficiencies discussed above. Unfortunately, however, it seems that the stratification did *not* stop at this point. Furthermore, there is no clear evidence that a random sampling technique was used at *any* point in the process. Instead of setting up a system of controls to assure the unhindered operations of chance, the division seems to have gone out of its way to *prevent* the operations of chance. As nearly as it was possible to determine in this study, the staff appraisers of the Division of Assessment Standards were instructed to sample still further according to a series of very uncertain criteria such as the age of the buildings, the size of the factories, the value of the properties, and so on. Thus, the final sample was selected *in the field* and can be claimed to conform only to the subjective processes of the individual appraiser, operating under instructions and subject to the requirement that the total number of appraisals in any one category be equal to that previously determined. Unless it were possible to conduct the sampling operation according to theoretically acceptable techniques and compare the results with those of the Division of Assessment Standards it would be impossible to say whether the actual sample resulted in a bias in one direction or the other. But the danger of a bias clearly exists and the danger itself serves to limit the effectiveness of the findings either of the State Board of Equalization in 1951 or of this committee in 1952.

Appraisal

The second step in the process of discovering the status of assessment equalization in the State of California is that of determining by appraisal the market values of each parcel of property in the sample. Nothing approximating a thorough investigation of the appraisal practices of the Division of Assessment Standards of the State Board of Equalization was made by this committee. All of the evidence, however, pointed to the probability that this phase of the work was very carefully and effectively done. The division makes use of three basic evidences of value and attempts to apply these to every parcel of property. The three evidences are (1) replacement costs; (2) capitalized income; and (3) sales (including comparative sales). In many cases, of course, one or another of these pieces of evidence may be lacking or may be unsatisfactory, in which case the division is forced to rely upon the remaining evidences. It may be that there is a tendency to rely too strongly upon replacement costs as direct evidences of market value but it appears, nevertheless, that the division attempts to arrive at a figure that is an estimate of market value in the sense in which this concept was developed in earlier chapters of this report. From rather brief observation of the instructional work of the division and of the mass of statistical data collected and prepared by the division in conjunction with this instructional program, the appraisal work of the division must be favorably judged. Furthermore, as is shown in Chapter XVI of this report, the appraisal findings of this committee tend strongly to corroborate the appraisal findings of the Division of Assessment Standards.[4]

Interpretation

In earlier sections of the present chapter it was pointed out that the appraisal findings must be followed by two interpretative steps. The first of these involves the process of statistical deduction, by which the findings of the sample are described with a series of simple statistical devices. The second involves the process of statistical induction, by which the findings of the sample are generalized to apply to the entire population and by which a test of the reliability of the estimate is established. The operations of the Division of Assessment Standards do not fit this interpretative pattern. One or two descriptive devices are, of course, constructed, but there is no attempt to develop these rigorously or to test the adequacy and reliability of the sample results. There is an attempt, rather, to apply a rather curious set of weights to the appraisal findings and to the resulting ratios of assessed to appraised value prior to the determination of the final figures for the county-wide ratios and the state-wide ratio of assessed to market value. This process is explained and illustrated as fully as possible below, although the explanation does lack clarity for the reason that at one point in the process the answers appear to have been determined by rule-of-thumb arithmetic and consequently defy documentation. In this explanation the data relevant to Imperial County only are presented as an example of the techniques used by the Division of Assessment Standards in its 1951 survey. Data relevant to other counties are shown in tabular form in Appendix E.

Table V shows the basic appraisal and assessment data for the construction of the county-wide ratio of assessed to market value for Imperial County. Table V shows, as did Table IV, that the sample consisted of 37 parcels of property in Imperial County, 18 of which were residential, five of which were commercial, 13 of which were farm properties, and one of which was industrial. It should further be noted from Table V that all of the residential and commercial properties were located inside the incorporated cities of Imperial County, while all of the farm and industrial properties were located outside the incorporated cities. The only personal property that was sampled was that associated with the one industrial property in the sample. The first four columns of Table V show the results of the appraisals of the Division of Assessment Standards, with the appraisals broken down by classes of property. The columns numbered 5 to 8, inclusive, show the assessed values attached to the same parcels of property, similarly broken down by classes of property. The columns numbered 9 to 12, inclusive, show the ratios of assessed to appraised value for each parcel of property and for the three classes of property land, improvements, and personal property.

The data of Table V are summarized and recapitulated in Table VI. The subtotals of Table V are expressed, of course, for each of the *types* of property (residential, commercial, and so on), and the totals for the "Inside" and "Outside" classification are not shown. The first figure in column 1 of Table VI is that for the total appraised value of land inside the incorporated cities for the parcels samples. This figure of $300,920 can be obtained from Table V by adding the first and second subtotals of column 1, that is $27,920 plus $273,000. The $413,480 figure shown for the total appraised value of improvements inside incorporated cities can be obtained by adding the comparable figures in column 2 of Table V, that is $174,480 plus $239,000. All other figures in Table VI can be obtained in the same way, except, of course, those for the ratios of assessed value to appraised value. Column 3 of Table VI shows the so-called "total value ratios," as these are determined simply by dividing the figures of column 2 by the corresponding figures of column 1.

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[4] This should not be taken to mean that *all* of the findings of the Division of Assessment Standards are supported by the findings of this committee. In fact, it is the point of the present discussion that the appraisal step is but one of several steps that it is necessary to take before it is possible to arrive at an answer to the problem of assessment equalization.

TABLE V

APPRAISED VALUES, ASSESSED VALUES, AND RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR 37 PARCELS OF PROPERTY IN IMPERIAL COUNTY AS APPRAISED BY THE STATE BOARD OF EQUALIZATION, BY TYPE, BY CLASS, AND BY LOCATION OF PROPERTY, 1951

Type of Property and Appraisal Number	*Appraised Value*				*Assessed Value*				*Ratio of Assessed Value to Appraised Value*			
	Land (1)	*Improvements* (2)	*Personal Property* (3)	*Total* (4)	*Land* (5)	*Improvements* (6)	*Personal Property* (7)	*Total* (8)	*Land* (9)	*Improvements* (10)	*Personal Property* (11)	*Total* (12)
Residential—Inside												
1	$800	$7,800	----	$8,600	$65	$2,000	----	$2,065	8.1	26.6	--	24.0
2	800	1,500	----	2,300	165	250	----	415	20.6	16.6	--	18.0
3	800	3,000	----	3,800	115	450	----	565	14.4	15.0	--	14.8
4	1,000	3,000	----	4,000	140	1,400	----	1,540	14.4	46.7	--	38.5
5	1,250	9,250	----	10,500	130	2,025	----	2,155	10.4	21.9	--	20.5
6	800	4,500	----	5,300	190	1,000	----	1,190	23.7	22.2	--	22.4
7	600	4,900	----	5,500	170	1,500	----	1,670	28.3	30.6	--	30.4
8	600	4,400	----	5,000	170	900	----	1,070	28.3	20.4	--	21.4
9	1,300	7,100	----	8,400	900	1,700	----	2,600	69.2	23.9	--	30.9
10	11,000	76,500	----	87,500	3,005	25,700	----	28,705	27.3	33.6	--	32.8
11	1,200	6,800	----	8,000	185	2,000	----	2,185	15.4	29.4	--	27.3
12	300	4,700	----	5,000	95	650	----	745	31.7	13.8	--	14.9
13	825	6,175	----	7,000	100	2,000	----	2,100	12.1	32.4	--	28.6
14	620	3,880	----	4,500	100	875	----	975	16.1	22.5	--	21.7
15	1,625	8,375	----	10,000	200	2,550	----	2,750	12.3	30.4	--	27.5
16	1,400	8,600	----	10,000	200	2,000	----	2,200	14.3	23.2	--	22.0
17	1,200	2,800	----	4,000	185	900	----	1,085	15.4	32.1	--	27.1
18	1,800	11,200	----	13,000	560	2,845	----	3,405	31.1	25.4	--	26.2
Subtotal	$27,920	$174,480	----	$202,400	$6,675	$50,745	----	$57,420				
Commercial—Inside												
19	$35,000	$60,000	----	$95,000	$9,030	$10,320	----	$19,350	25.8	17.2	--	20.4
20	18,000	19,000	----	37,000	2,630	2,160	----	4,790	14.6	11.4	--	12.9
21	7,500	22,500	----	30,000	2,205	6,200	----	8,405	29.4	27.5	--	28.0
22	37,500	47,500	----	85,000	8,745	6,900	----	15,645	23.3	14.5	--	18.4
23	175,000	90,000	----	265,000	17,820	26,080	----	43,900	10.2	28.9	--	16.6
Subtotal	$273,000	$239,000	----	$512,000	$40,430	$51,660	----	$92,090				
Industrial—Outside												
24	$48,000	$6,113,350	$16,650	$6,178,000	$15,250	$900,000	$2,450	$917,700	31.8	14.7	14.7	14.9
Farm—Outside												
25	$16,500	----	----	$16,500	$1,640	----	----	$1,640	9.9	--	--	9.9
26	9,000	----	----	9,000	4,500	----	----	4,500	50.0	--	--	50.0
27	3,100	----	----	3,100	2,340	----	----	2,340	75.5	--	--	75.5
28	14,900	----	----	14,900	2,800	----	----	2,800	18.8	--	--	18.8
29	24,000	$750	----	24,750	7,750	$50	----	7,800	32.2	6.7	--	31.5
30	38,250	----	----	38,250	7,500	----	----	7,500	19.6	--	--	19.6
31	13,900	----	----	13,900	4,350	----	----	4,350	31.3	--	--	31.3
32	5,750	----	----	5,750	1,520	----	----	1,520	26.4	--	--	26.4
33	34,000	----	----	34,000	6,040	----	----	6,040	17.8	--	--	17.8
34	6,800	----	----	6,800	1,950	----	----	1,950	28.7	--	--	28.7
35	7,900	300	----	8,200	3,100	----	----	3,100	39.2	--	--	37.8
36	4,500	----	----	4,500	1,140	----	----	1,140	25.3	--	--	25.3
37	6,000	6,250	----	12,250	1,700	1,500	----	3,200	28.3	24.0	--	26.1
Subtotal	$184,600	$7,300	----	$191,900	$46,330	$1,550	----	$47,880				
Grand total	$533,520	$6,534,130	$16,650	$7,084,300	$108,685	$1,003,955	$2,450	$1,115,090				

SOURCE: All data from work sheets of the Division of Assessment Standards of the State Board of Equalization.

If the total appraised value of all parcels in the sample is divided into the total assessed value of all parcels in the sample the ratio of assessed to appraised value is 15.7 percent as shown at the bottom of column 3 of Table VI. The ratio figures of column 4 of Table VI are the simple averages of all of the ratios in that particular class. For example, there are 23 parcels of property that fit the category ''land inside incorporated cities,'' and 23 separate ratios of assessed to appraised value are shown in column 9 of Table V. These 23 ratio figures were totaled and divided by 23. The result was 21.6, shown as the first figure in column 4 of Table VI. Obviously, the figure of 25.9, shown at the bottom of column 4 of Table VI, was determined by taking the simple arithmetic average of all 37 ratios shown in column 12 of Table V. The median ratios are shown in column 5 of Table VI. The fact that the first of these is 16.0 indicates that, of the 23 parcels of property in the ''land inside incorporated cities'' category, 11 parcels had ratios of assessed to appraised value below

TABLE VI

COMPUTATION OF TOTAL VALUE RATIO, AVERAGE RATIO, MEDIAN RATIO AND FINAL RATIO OF ASSESSED VALUE TO APPRAISED VALUE FOR IMPERIAL COUNTY, BY TYPE OF PROPERTY, 1951

Location of Property	*Class of Property*	*Total Appraised Value* (1)	*Total Assessed Value* (2)	*Ratio of Total Assessed Value to Total Appraised Value* (3)	*Average Ratio of Assessed Value to Appraised Value* (4)	*Median Ratio of Assessed Value to Appraised Value* (5)	*Final Ratio of Assessed Value to Appraised Value* (6)
Inside							
	Land	$300,920	$47,105	15.7	21.6	16.0	19.0
	Improvements	413,480	102,405	24.8	24.6	24.0	25.0
	Personal property	----	----	--	--	--	25.0
	Subtotal	$714,400	$149,510	20.9	23.7	22.0	--
Outside							
	Land	$232,600	$61,580	26.5	31.1	29.0	27.0
	Improvements	6,120,650	901,550	14.7	11.4	11.7	20.0
	Personal property	16,650	2,450	14.7	14.7	14.7	25.0
	Subtotal	$6,369,900	$965,580	15.2	29.5	26.0	--
Total							
	Land	$533,520	$108,685	20.4	25.2	24.0	--
	Improvements	6,534,130	1,003,955	15.4	22.6	24.0	--
	Personal property	16,650	2,450	14.7	14.7	14.7	--
	Grand total	$7,084,300	$1,115,090	15.7	25.9	25.0	25.0

SOURCE: All data from the Division of Assessment Standards of the State Board of Equalization.

16.0, while 11 parcels had ratios of assessed to appraised value above 16.0 (one parcel had a ratio of 16.1).

Each of these calculations represents an appropriate description of the sample. The work sheets of the Division of Assessment Standards did, indeed, show one other calculation, to yield a modal ratio for each of the classifications. This, of course, was based upon a frequency distribution chart. The modal ratios are not shown here in view of the fact that they are quite unsatisfactory for the Imperial County distribution. In fact, the work sheets of the division show the modal values as indentical to the arithmetic mean of the ratios for this county, and this, of course, is impossible if the median is not also equal to the arithmetic mean. It might be thought that one or the other of these descriptive measures would be selected as the county-wide average of assessed to market value. It would, as is shown later in this report, be quite justifiable to take either the total value ratio shown in column 3 of Table VI or the average ratio shown in column 4 of Table VI. It is also shown later in the report that the choice between these two ratio expressions depends upon the use to which the ratio is to be put. If it is to be used to describe intracounty equalization it should be the average ratio shown in column 4: if it is to be used to describe intercounty equalization, with a recognition that the only thing that makes such a problem meaningful is the present pattern of the distribution of state funds, the appropriate ratio is the ''total value ratio'' shown in column 3. At the moment, however, it is obvious that the Division of Assessment Standards was unwilling to use *either* of these averages. Two kinds of ''weights'' appear to have been applied to arrive at the final figure to represent the ratio of assessed to market value for Imperial County (and for all other counties). One set of weights were applied to obtain the figures in column 6 of Table VI, and the second set of weights were applied to obtain the final figure shown in Table VII. It is the purpose of the present discussion to show that the first of these weighting systems is highly subjective in character and not capable of any clear interpretation, and that the second is based upon a dangerous and misleading assumption.

There is no discernible relationship between the figures which appear in column 6 of Table VI and the figures which appear in columns 3, 4, and 5 of the same table. Working computations which appeared on the back of the original work sheets of the Division of Assessment Standards indicate that some attention was given to the different *types* of property. Of the two categories of land inside incorporated cities commercial land appears to have been given a weight of 40 percent and residential land a weight of 60 percent. The same varying weights were given to other categories. One further example is sufficient: for the two types of land outside incorporated cities, industrial land was given a weight of 15 percent and agricultural land was given a weight of 85 percent. These weights were apparently designed to take account of the fact that the sample itself was not uniformly representative of the several types of property, but just why these figures are used as a measure of the *lack* of such uniformity cannot be explained. The weights were applied to ratio figures that represent some kind of combination of the total value ratio, the average ratio, the median ratio, and the modal ratio. In a communication from the Division of Assessment Standards to this committee it was stated that ''the ratio [the 25.0 ratio shown at the bottom of column 6 of Table VI] was determined after considering the ratio average, the ratio median, and the ratio mode, and the total value ratio. Included in the process was an analysis of the individual appraisals as well as a weighting of the types of property.'' It is clearly impossible to determine the actual process of arriving at this answer. But it may fairly be concluded that this kind of weighting operation is a potentially dangerous one. If a weighting system is to be used at all it must be possible to show that the weighted results are more meaningful than the unweighted results, but to do this it is necessary to have a precise and logical weighting system in mind. Subjective weighting always carries the possibility of bias, and bias, whether conscious or unconscious, destroys the validity of any statistical results. There is, perhaps, some justification for the use of a system of weights at this level of the computations. It is recognized that the sample is inadequate, both with respect to the total number of items which it contains and with respect to the percentage representation given to the several types of property. However, if the sample is constructed according to the number of parcels of property in each class the weighting system must be constructed with this base as well. If any other measure of the sample inadequacy is adopted the question must always be raised as to why this measure was not used in the construction of the sample. It appears that the Division of Assessment Standards has attempted to measure the inadequacy of the sample in terms of the representation given to properties with different market values. But in the present case no such measure is possible. Before it can be stated that a given class of property is underemphasized in the sample because a relatively small percentage of the total market value of this class is represented in the sample it must be possible to say what the total market value of this class *is*. But this is precisely the reason for setting up the sample in the first place—to discover the market value of all properties in the county, as these properties are arranged into classes and types. The use of such a weighting system, if, indeed, it can be called a "system," implies that the answers are already known and that the whole survey is conducted merely to give the appearance of reputability. It is not here suggested that the Division of Assessment Standards approached its survey task with this in mind. Indeed, quite the opposite appears to have been the case. But, as stated earlier in this chapter, an unconscious bias can be even more dangerous than a conscious bias in many cases.

Table VII shows the final steps in the calculation of a single figure that may be taken as the opinion of the Division of Assessment Standards regarding the ratio of assessed value to market value in Imperial County for 1951. In column 1 of Table VII are shown the 1951 assessed values of the several classes of properties both inside and outside incorporated cities. These assessed value figures were reported to the Division of Assessment Standards by the county assessor. Column 2 shows the percentage of the total assessed value associated with each category. Column 3 shows the final ratio figures associated with each category as carried from column 6 of Table VI. The weighted ratio figures of column 4 of Table VII were computed by dividing the figures of column 2 by the figures of column 3. The figures so computed were totalled and the result shown at the bottom of column 4 as 4.075. The county ratio was then determined by dividing 1 by 4.075, to yield an answer of 24.61 percent (the result should have been 24.54 percent, the difference presumably being explained as a mechanical error). Thus, a new weighting system is introduced in the computations of Table VII. In this case, however, the system of weights is perfectly clear and straightforward, although it is not without its insufficiencies. Each class of property is weighted according to its importance on the assessment roll of the county. This system assumes, however, that the relative importance of each class of property is correctly stated when, in fact, this too is part of the problem being studied. It may be, for example, that the total assessed value of land inside incorporated cities is low because the ratio of assessed to market value is low and not because the market value itself is low. Thus, the use of this kind of weighting system tends to amplify the inaccuracies rather than to remove them.

When the Division of Assessment Standards had computed similar county-wide ratios by similar tech-

TABLE VII

COMPUTATION OF FINAL COUNTY-WIDE RATIO OF ASSESSED VALUE TO APPRAISED VALUE FOR IMPERIAL COUNTY, 1951

Location of Property	*Class of Property*	*Assessed Value 1951* (1)	*Assessed Value as a Percent of Total Appraised Value* (2)	*Final Ratio of Assessed Value to Appraised Value* (3)	*Weighted Ratio* (4)	*Final County Ratio* (5)
Inside						
	Land	$3,289,050	5.67	19.0	.299	
	Improvements	12,766,690	21.99	25.0	.880	
	Personal property	6,025,602	10.38	25.0	.415	
	Subtotal	$22,081,341	38.03	--	1.594	
Outside						
	Land	$21,881,625	37.69	27.0	1.397	
	Improvements	6,021,560	10.37	20.0	.518	
	Personal property	8,071,007	13.90	25.0	.566	
	Subtotal	$35,974,192	61.97	--	2.481	
Total						
	Land	$25,170,675	--	--	--	
	Improvements	18,788,250	--	--	--	
	Personal property	14,096,609	--	--	--	
	Grand total	$58,055,534	100.00	25.0	4.075	24.61

SOURCE: All data from the Division of Assessment Standards of the State Board of Equalization.

niques for each of the 58 counties, the total assessed valuation of all locally assessed tangible property before exemptions was divided by the computed market value of the same property. The market value of this property for the State as a whole was determined, of course, by dividing the total assessed value of such property in each county by the computed ratio for that county and adding the results for each of the 58 counties. It was not considered necessary to weight these county ratios further in the process of computing the state-wide ratio. The state-wide ratio of assessed value to market value thus computed was 28 percent.

Although the computations made by the Division of Assessment Standards of the State Board of Equalization thus produced a state-wide average ratio of assessed to market value of 28 percent, the final publication of the results showed a state-wide average ratio of assessed to market value of 40 percent. This resulted from the application of the factor 1.43 to the computed 28 percent figure for the State as a whole and to the appropriate county figures for each of the 58 counties. In this process, Imperial County, for example, showed a final ratio of assessed to market value of 36 percent. This factor was applied for the sole purpose of closing the gap between the computed state-wide ratio of assessed to market value for locally assessed property and the claimed 50 percent ratio of assessed to market value for state assessed property. Since the 1.43 factor was uniformly applied to all counties, the relationships *between* counties was not disturbed as far as the locally assessed roll was concerned. The step was taken presumably because it was felt by the State Board of Equalization that the issuance of equalization orders to lower the ratio of assessed market value for state assessed taxpayers in some counties would involve the danger of severe fiscal disruption in those counties.

METHODS USED BY THE STATE SENATE INTERIM COMMITTEE ON STATE AND LOCAL TAXATION IN THE 1952 SURVEY

Sampling

As stated earlier in this report, the sample used by the State Senate Interim Committee on State and Local Taxation in its survey of common property assessments in 1952 was based upon the sample used by the State Board of Equalization in its survey of 1951. As a result, the sample used by this committee must be said to contain, as a minimum, all of the insufficiencies described above with reference to the sample used by the State Board of Equalization. In fact, however, as is presently shown, the committee sample contains additional insufficiencies.

Upon request of this committee, the Division of Assessment Standards of the State Board of Equalization submitted a list of all of the parcels of real property which it had appraised in 1951. This list showed the legal descriptions of all parcels of property. Unfortunately, however, it was impossible for this committee to conduct as extensive a survey as had been conducted by the State Board of Equalization, even though it is recognized that the original sample was a good deal smaller than would have been desirable. Of the 2,380 parcels in the State Board of Equalization sample, this committee was able to obtain acceptable appraisals for a total of 1,708 parcels, or approximately 71.8 percent of the original sample. For the State as a whole this represents a high degree of success, in terms of the problems with which this committee was faced. This success was by no means uniformly distributed over the 58 counties, however, with the result that the sample is decidedly weak in some counties and nonexistent in a few. It was impossible to obtain sample appraisals in three counties, these being Amador, Inyo, and Mono Counties. In addition, the committee had less than 50 percent "success" in 10 other counties, although in six of these cases the figure was between 40 percent and 50 percent. These 10 counties are as follows: Kings, Lake, Lassen, Madera, Modoc, Nevada, Plumas, Siskiyou, Tuolumne, and Yuba. In some cases it was necessary to eliminate appraisal figures submitted by members of the Appraisal Advisory Committee to the Senate Interim Committee on State and Local Taxation. Some of these deletions were necessitated by an obvious discrepancy between the property description supplied by the State Board of Equalization and comments submitted with the appraisal returns of the Appraisal Advisory Committee. In other cases the value figures shown by the assessor, the State Board of Equalization, and the appraisers of this committee were so different as to cast grave doubt that the three appraisers were examining the same parcel of property. Every effort was made to track down these discrepancies but it was necessary to eliminate the unexplained residue, inasmuch as it was felt that a smaller sample was likely to be less misleading than a possible inaccurate one. It was also necessary to eliminate some 40 parcels of property that were listed as part of the original sample because it was felt that their appraisal would be too difficult and too time consuming. Table VIII shows the number of parcels in the original sample as used by the State Board of Equalization for each county and for the State as a whole, together with the number of parcels which it was possible to include in the survey by this committee. Column 3 of Table VIII shows, for each county and for the State as a whole, the committee sample as a percentage of the sample used by the State Board of Equalization. Although this committee has no delusions about the adequacy of the sample used in this survey, it is still felt that information obtained is extremely useful. If this information may not be said to lead to a *proof* of the magnitude of the equalization problem it may nevertheless be said to represent a strong indication of the magnitude of that problem.

Appraisal

In one important respect the appraisal work conducted by this committee leaned heavily upon information provided by the State Board of Equalization. It was felt that a needless expenditure of time and effort would be involved if the members of the Appraisal Advisory Committee to the Senate Committee were required to spend their time with the lengthy mechanical tasks of appraisal. As a result, a request was made to the

TABLE VIII

ORIGINAL SAMPLE USED BY THE STATE BOARD OF EQUALIZATION IN 1951 AND FINAL SAMPLE USED BY STATE SENATE INTERIM COMMITTEE ON STATE AND LOCAL TAXATION IN 1952, BY COUNTIES

Counties	*Number of Parcels in Original Sample* *(1)*	*Number of Parcels in Final Committee Sample* *(2)*	*Column (2) as a Percentage of Column (1)* *(3)*
Alameda	77	65	84.4
Alpine	7	6	85.7
Amador	18	--	--
Butte	34	23	67.6
Calaveras	21	15	71.4
Colusa	19	18	94.7
Contra Costa	52	39	75.0
Del Norte	16	15	93.8
El Dorado	22	10	45.5
Fresno	67	50	74.6
Glenn	21	11	52.4
Humboldt	30	19	63.3
Imperial	37	23	62.2
Inyo	19	--	--
Kern	69	41	59.4
Kings	22	10	45.5
Lake	26	12	46.2
Lassen	25	4	16.0
Los Angeles	339	301	88.8
Madera	24	10	41.7
Marin	31	27	87.1
Mariposa	12	9	75.0
Mendocino	19	12	63.2
Merced	39	20	51.3
Modoc	28	11	39.3
Mono	13	--	--
Monterey	35	21	60.0
Napa	21	14	66.7
Nevada	15	7	46.7
Orange	64	48	75.0
Placer	27	15	55.6
Plumas	22	8	36.4
Riverside	58	40	69.0
Sacramento	53	32	60.4
San Benito	20	19	95.0
San Bernardino	148	133	89.9
San Diego	77	60	77.9
San Francisco	63	58	92.1
San Joaquin	48	38	79.2
San Luis Obispo	44	29	65.9
San Mateo	58	39	67.2
Santa Barbara	43	34	79.1
Santa Clara	59	55	93.2
Santa Cruz	40	37	92.5
Shasta	19	11	57.9
Sierra	18	9	50.0
Siskiyou	19	9	47.4
Solano	34	20	58.8
Sonoma	38	29	76.3
Stanislaus	45	34	75.6
Sutter	28	18	64.3
Tehama	22	13	59.1
Trinity	15	10	66.7
Tulare	35	31	88.6
Tuolumne	22	2	9.1
Ventura	55	50	90.9
Yolo	22	22	100.0
Yuba	26	12	46.2
Total	2,380	1,708	71.8

SOURCE: State Board of Equalization and work sheets of the committee appraisal study.

State Board of Equalization for such data as the physical description of the properties, the dimensions of improvements, the date of construction, and so on. It was felt that this kind of information was relatively uncontroversial and that it was subject to fairly easy test if it should appear that the need existed. In addition, the members of the Appraisal Advisory Committee were requested to note any important discrepancies between the description provided and the current physical condition of the property. The State Board of Equalization readily complied with this request and the appropriate information was copied on ''appraisal sheets'' identical to those used by the State Board of Equalization and by many of the local assessors. It must be emphasized at this point that at no time did the State Board of Equalization release information to this committee that had been acquired in confidence from the locally assessed property owner. Extreme care was taken both by the State Board of Equalization and by this committee to assure that this confidence was not disturbed.

The appraisal work itself was undertaken, as mentioned earlier in this report, by realtors and appraisers from all parts of the State who were constituted as an Appraisal Advisory Committee to the Senate Interim Committee on State and Local Taxation. The work of this Appraisal Advisory Committee was coordinated by a state-wide Steering Committee under the chairmanship of Mr. Charles B. Shattuck. It was of course extremely important to insure that the appraisals themselves would be conducted on as nearly uniform a basis as possible, and that the same concept of market value would be used by the members of the Appraisal Advisory Committee.

The cooperation shown by the members of the Appraisal Advisory Committee and the conscientious manner in which the assignments were completed serve to create confidence in the results. In addition, it was recognized that the group of realtors and appraisers appointed to this Advisory Committee were extremely close to the market and well acquainted with its operations. Indeed, it was felt that these individuals represented a group that come as close as possible to the actual *determination* of market prices with respect to many types of property included in the sample. The results of these appraisals are summarized and illustrated in Chapter XVI of this report and are shown in detail in Appendix F.

Interpretation of the Sample

The statistical description of the results of the sample consisted of the computation of a series of measures as described in detail in Chapter XVI. In brief, these measures were the arithmetic mean of the ratios of assessed to market value, the ratio of the total assessed value to the total market value (which is shown to be a weighted average of the individual ratios), the median ratio of assessed to market value, the range of the ratios of assessed to market value, and the standard deviation of the distribution of the ratios of assessed to market value. These calculations were made for individual counties and for the State as a whole. The small sample available in some counties obviously made it inappropriate to compute all of these measures in all 58 counties. A more complete description of these devices and a discussion of their significance is reserved for presentation in Chapter XVI.

In order to test the reliability of the sampling results the statistical device known as the ''standard error of the mean'' was used in those cases in which the data warranted its construction. The character and meaning of this device are also shown in Chapter XVI.

CHAPTER XVI

THE INTERCOUNTY EQUALIZATION OF LOCALLY ASSESSED PROPERTY: FINDINGS

It is the purpose of this chapter to present the quantitative findings of the two surveys that were conducted in an attempt to determine the status of intercounty equalization of assessments on the local rolls of the State of California. The first of these surveys was that conducted by the State Board of Equalization to apply to the assessments made as of the first Monday in March, 1951; the second was that conducted by the Senate Interim Committee on State and Local Taxation to apply to the assessments made as of the first Monday in March, 1952. It must be emphasized that only the quantitative findings are reported in this chapter, with, of course, a brief interpretation of these findings. In Chapter XV the methods used in these two surveys were described and the limitations coming from these methods as clearly stated as possible. The warning is here advanced that the findings themselves are incomplete without the explanatory material of Chapter XV, so that the data presented in the present chapter may not be considered to be meaningful unless they are interpreted with reference to the discussions of Chapter XV.

TABLE I

ASSESSED VALUE AS A PERCENT OF MARKET VALUE FOR EACH COUNTY AND FOR THE STATE AS A WHOLE, AS PUBLISHED BY THE STATE BOARD OF EQUALIZATION, 1951

County	*Assessed Value as a Percent of Market Value*	*County*	*Assessed Value as a Percent of Market Value*
Alameda	37	Orange	46
Alpine	32	Placer	36
Amador	43	Plumas	40
Butte	39	Riverside	43
Calaveras	44	Sacramento	34
Colusa	36	San Benito	32
Contra Costa	34	San Bernardino	32
Del Norte	36	San Diego	39
El Dorado	43	San Francisco	44
Fresno	44	San Joaquin	40
Glenn	44	San Luis Obispo	33
Humboldt	33	San Mateo	29
Imperial	36	Santa Barbara	40
Inyo	37	Santa Clara	39
Kern	39	Santa Cruz	32
Kings	44	Shasta	27
Lake	40	Sierra	36
Lassen	32	Siskiyou	37
Los Angeles	43	Solano	37
Madera	39	Sonoma	42
Marin	36	Stanislaus	33
Mariposa	36	Sutter	44
Mendocino	42	Tehama	40
Merced	36	Trinity	24
Modoc	32	Tulare	32
Mono	39	Tuolumne	46
Monterey	39	Ventura	37
Napa	40	Yolo	36
Nevada	30	Yuba	40
State-wide ratio	40		

SOURCE: State Board of Equalization.

On July 16, 1951, the State Board of Equalization formally determined the ratios of assessed value to market value for each of the 58 counties and for the State as a whole to be as shown in Table I. This formal determination was based upon the sampling, appraisal work, and interpretations of the Division of Assessment Standards of the State Board of Equalization pursuant to Article 1, Chapter 2, Part 3, Division 1 of the Revenue and Taxation Code, and particularly Sections 1831 and 1832 of the Revenue and Taxation Code. The findings as published by the State Board of Equalization show the state-wide ratio of assessed to market value to be 40 percent, with the individual county-wide ratios of assessed to market value ranging from a low of 24 percent to a high of 46 percent. The state-wide ratio of 40 percent was higher than the median ratio for the 58 counties, for there were only 14 counties with ratios higher than the state-wide ratio while there were 37 counties with ratios lower than the state-wide ratio and seven counties with ratios exactly equal to the state-wide ratio. The ratios shown in Table I may be summarized for the State as a whole as follows:

Number of counties with ratios higher than 10 percent above the state-wide ratio	2
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but above the state-wide ratio	12
Number of counties with ratios equal to the state-wide ratio	7
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but below the state-wide ratio	21
Number of counties with ratios lower than 10 percent below the state-wide ratio	16
Total number of counties	58

Thus, if the State Board of Equalization had invoked the provisions of Section 1837 of the Revenue and Taxation Code, it would, by one of the alternative procedures, have had to issue equalization orders to 16 counties to raise their assessments to the 40 percent level and to two counties to lower its assessments to the 40 percent level. After compliance with such orders, there would have been 25 counties with equalized ratios equal to the state-wide ratio of 40 percent, 12 counties with ratios above the state-wide ratio but within the 10 percent tolerance, and 21 counties with ratios below the state-wide ratio but within the 10 percent tolerance. On the assumption that the Valuation Division of the State Board of Equalization was assessing public utility property at 50 percent of the market value of such property, the State Board of Equalization would then have had to lower the public utility assessment to the 40 percent level in the 25 counties, and the levels varying from 44 percent to 36 percent in the remaining 33 counties. The alternative procedure envisaged by Section 1837 of the Revenue and Taxation Code would, of course, have meant that the State Board of Equalization would have left the ratios of assessed value to market value for the locally assessed property untouched in each of the 58 counties and adjusted the ratio of assessed to market value for the state-assessed property downward by varying amounts to conform to the published ratios for each county. The assessment levels for the public utility taxpayers would, in other words, vary from the 24 percent level to the 46 percent level over the State as a whole.

As pointed out earlier in this report, the ratios published by the State Board of Equalization, although *based upon* the findings of the staff of the Division of Assessment Standards, were not merely presented as a *report* of the staff findings. In fact, the figures finally published represented the application of the arbitrary factor of 1.43 to each of the county ratios actually determined by the Division of Assessment Standards and to the state-wide ratio as similarly determined. According to the actual computations of the State Board of Equalization, before the application of the 1.43 factor, the state-wide ratio of assessed value to market value was 28.00 percent, and the ratios of assessed value to market value in the 58 counties ranged from a high of 31.81 percent to a low of 16.99 percent. These ratios of assessed to market value, for each county and for the State as a whole, are shown in Table II. It is clear that the application of a constant factor to these individual county ratios and to the state-wide ratio would not change the relationship between counties, so that the use of the first alternative policy suggested by Section 1837 of the Revenue and Taxation Code to provide for intercounty equalization would involve the same number of counties as described above. However, after these adjustments had been ordered and complied with there would be intercounty equalization (within a 10 percent tolerance on either side of the state-wide ratio) around a state-wide ratio of only 28 percent. On the assumption that the state-assessed taxpayers were being assessed at the 50 percent level, however, it would have been necessary for the State Board of Equalization to have lowered the public utility ratios to the 28 percent level in 24 counties and to adjust the ratios accordingly in those counties within the 10 percent tolerance limits. By the alternative procedures, of course, the public utility taxpayers would have had assessments lowered until they conformed with the levels of assessments determined by the State Board of Equalization for each county in the State. It appears that the severe reduction in the assessments of the state-assessed taxpayers that would have resulted from the application of either alternative method to the original findings of the State Board of Equalization is the most important single explanation of the action by the State Board of Equalization in applying the factor 1.43 to the state-wide ratio and to the ratio of each of the counties in the State. In the application of this factor the State Board of Equalization simply multiplied the 58 ratio figures which had previously been calculated to two places of decimals and then rounded the results to the nearest whole number. It is interesting to notice that an apparently small change in the system of rounding could make a good deal of difference to the final results. Although the application of the 1.43 factor should make no difference to the number of equalization orders that would have been issued to bring about intercounty equalization, if the rounding had been done *before* the application of the factor several more such orders would have had to be issued. This is shown in terms of the ratios that actually were computed by the Division of Assessment Standards in the tabular explanation below. The figures in each of the categories should be the same as those shown for the finally published figures, and the fact that they are not indicates merely a different system of rounding.

TABLE II

ASSESSED VALUE AS A PERCENT OF MARKET VALUE FOR EACH COUNTY AND FOR THE STATE AS A WHOLE, AS COMPUTED BY THE STATE BOARD OF EQUALIZATION, 1951

County	*Assessed Value as a Percent of Market Value*	*County*	*Assessed Value as a Percent of Market Value*
Alameda	25.25	Orange	31.81
Alpine	21.49	Placer	24.01
Amador	29.77	Plumas	27.67
Butte	26.36	Riverside	29.54
Calaveras	31.13	Sacramento	23.68
Colusa	25.34	San Benito	21.45
Contra Costa	23.48	San Bernardino	22.07
Del Norte	25.07	San Diego	26.58
El Dorado	29.27	San Francisco	31.35
Fresno	30.70	San Joaquin	27.74
Glenn	30.70	San Luis Obispo	22.68
Humboldt	22.78	San Mateo	19.47
Imperial	24.61	Santa Barbara	27.94
Inyo	26.21	Santa Clara	26.99
Kern	26.41	Santa Cruz	21.23
Kings	30.54	Shasta	18.81
Lake	28.16	Sierra	24.72
Lassen	22.07	Siskiyou	25.48
Los Angeles	29.88	Solano	25.19
Madera	27.06	Sonoma	28.57
Marin	24.64	Stanislaus	23.09
Mariposa	24.88	Sutter	31.33
Mendocino	28.95	Tehama	27.70
Merced	24.06	Trinity	16.99
Modoc	21.62	Tulare	21.71
Mono	26.56	Tuolumne	31.58
Monterey	27.15	Ventura	25.67
Napa	27.90	Yolo	24.97
Nevada	21.01	Yuba	27.95
State-wide ratio	28.00		

SOURCE: State Board of Equalization.

Number of counties with ratios higher than 10 percent above the state-wide ratio	8
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but above the state-wide ratio	6
Number of counties with ratios equal to the state-wide ratio	7
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but below the state-wide ratio	9
Number of counties with ratios lower than 10 percent below the state-wide ratio	28
Total number of counties	58

Thus, if the State Board of Equalization had decided to issue intercounty equalization orders based upon these rounded figures, it would have had to order negative adjustments for the top eight counties and positive adjustments for the bottom 28 counties.

The calculations made by the Division of Assessment Standards that resulted in the ratio figures of Table II were described in Chapter XV of this report, and many of the calculations are reproduced in Appendix E. It was also stated in Chapter XV, however, that these calculations involve a rather unusual system of weighting that appears, in some cases, to have been based upon little more than guesswork, and, in other cases, upon the kind of information that is being sought in the investigation itself. It is claimed in this report that no such weighting systems are warranted in the determination of the ratios of assessed to market value for each of the counties and for the State as a whole. In terms of the intercounty equalization program, it is claimed that the significant ratio computation for a given county and for the State as a whole is that which involves totaling all of the assessed values of the property in the sample and dividing this total by the total of all of the appraised values of the sample properties. There is, to be sure, a sense in which the figure so computed may be said to be a weighted ratio, but it can also be shown (and *is* shown later in the present chapter) that the weights involved are not designed to account for the insufficiencies of the sample but merely to yield a ratio figure that is significant for the problem under consideration. The figures of Table III show the calculation of these ''total value ratios'' for each county and for the State as a whole. The appraised values are, of course, those determined by the Division of Assessment Standards of the State Board of Equalization. With these computations it can be seen that the state-wide ratio of assessed to market value turns out to be somewhat higher than with the computations actually used, although it is still lower than that *published* by the State Board of Equalization. Although this state-wide ratio is higher, the dispersion of county ratios around the state-wide ratio is greater, and shows a much heavier concentration of county ratios at the lower end of the distribution. The 58 county ratios computed in this way represent an acceptance of the appraisal work of the Division of Assessment Standards but a rejection of the weighting system and other manipulations of the appraisal data collected by the division. The results of these computations are summarized as follows:

TABLE III

COMPUTATION OF THE "TOTAL VALUE RATIOS" FOR EACH COUNTY AND FOR THE STATE AS A WHOLE ON THE BASIS OF APPRAISALS MADE BY THE STATE BOARD OF EQUALIZATION, 1951

County	*Total Appraised Value of Sample, 1951*	*Total Assessed Value of Sample, 1951*	*Total Assessed Value of Sample as a Percent of Total Appraised Value of Sample, 1951*
Alameda	$6,918,935	$2,097,925	30.32
Alpine	85,250	24,720	29.00
Amador	306,650	77,085	25.14
Butte	950,250	205,070	21.58
Calaveras	410,150	114,100	27.82
Colusa	483,050	122,285	25.31
Contra Costa	2,052,600	375,345	18.29
Del Norte	1,248,200	274,310	21.98
El Dorado	398,750	113,980	28.58
Fresno	418,938,700	148,350,275	35.41
Glenn	427,000	117,640	27.55
Humboldt	1,783,150	370,630	20.78
Imperial	7,067,650	1,112,640	15.74
Inyo	344,400	91,610	26.60
Kern	670,375,525	230,465,850	34.38
Kings	130,181,700	41,476,525	31.86
Lake	392,800	103,480	26.34
Lassen	240,950	39,150	16.25
Los Angeles	456,287,850	151,671,960	33.24
Madera	1,829,800	551,050	30.11
Marin	1,026,850	226,280	22.04
Mariposa	115,600	22,500	19.46
Mendocino	478,350	119,850	25.05
Merced	682,900	126,930	18.59
Modoc	517,100	77,135	14.92
Mono	160,390	39,335	24.52
Monterey	3,940,050	1,248,785	31.69
Napa	513,925	130,300	25.35
Nevada	194,750	42,030	21.58
Orange	254,876,700	86,139,070	33.80
Placer	491,100	113,085	23.03
Plumas	360,905	93,050	25.78
Riverside	2,226,850	594,860	26.71
Sacramento	2,561,100	600,740	23.46
San Benito	210,350	49,190	23.38
San Bernardino	13,379,350	1,853,960	13.86
San Diego	4,751,450	1,080,270	22.74
San Francisco	4,677,000	1,845,184	39.45
San Joaquin	1,503,850	375,500	24.97
San Luis Obispo	21,613,350	5,627,600	26.04
San Mateo	2,710,150	478,105	17.64
Santa Barbara	219,565,700	70,588,640	32.15
Santa Clara	2,779,450	766,520	27.58
Santa Cruz	2,312,100	371,140	16.05
Shasta	1,114,800	171,920	15.42
Sierra	232,300	58,935	25.37
Siskiyou	457,200	121,525	26.58
Solano	1,332,735	283,060	21.24
Sonoma	1,288,150	309,835	24.05
Stanislaus	1,403,050	291,340	20.76
Sutter	1,415,920	419,810	29.65
Tehama	668,625	166,130	24.85
Trinity	184,150	28,425	15.44
Tulare	5,568,500	1,606,225	28.84
Tuolumne	343,040	106,550	31.06
Ventura	388,136,750	127,390,650	32.82
Yolo	1,532,400	324,965	21.21
Yuba	1,065,550	267,620	25.12
Total	$2,647,115,850	$881,912,679	33.32

SOURCE: State Board of Equalization.

Number of counties with ratios higher than 10 percent above the state-wide ratio	1
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but above the state-wide ratio	3
Number of counties with ratios equal to the state-wide ratio	2
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but below the state-wide ratio	7
Number of counties with ratios lower than 10 percent below the state-wide ratio	45
Total number of counties	58

In this case it is clear that the State Board of Equalization would have had to order negative adjustments for only one county in the State but positive adjustments for 45 counties of the State. With this method of calculation the state-wide ratio of assessed to market value is determined largely by those counties that contain the bulk of the property value of the State—Los Angeles County, San Francisco City and County, and Alameda County in particular. With relatively high ratios in these counties, the remaining counties of the State might be expected to fall into the lower categories shown in the above tabulation. It is apparent too that, consciously or unconsciously, the weighting system used by the State Board of Equalization in the adjustment of its actual appraisal findings had the effect of reducing the severity of the appearance of the intercounty equalization problem, for it had the effect of making the several counties of the State conform more closely to the state-wide ratio. It is also apparent that the weighting system had the effect of lowering the state-wide ratio of assessed to market value from approximately 33 percent to approximately 28 percent. In terms of the broad equalization orders that might have been expected to result from the findings, the use of the particular weighting system chosen by the State Board of Equalization made it less necessary to issue intercounty equalization orders but more necessary to issue equalization orders to provide uniformity between state-assessed taxpayers and locally assessed taxpayers. This latter necessity was, of course, removed by the use of the 1.43 factor mentioned above which had the effect of raising all of the county ratios and the state-wide ratio to closer conformity with the ratio which the State Board of Equalization declared to be that at which public utility enterprises were being assessed. The results of these three calculations are further summarized in Table IV in the form of a series of frequency distributions that are divorced from the tolerance limits established by Sections 1836 and 1837 of the Revenue and Taxation Code. In all three cases, the actual appraisal work of the Division of Assessment Standards of the State Board of Equalization is not questioned, and the appraisals serve as the base of each of the distributions. One case shows the ratios as calculated by the Division of Assessment Standards before the adjustment by the 1.43 factor. Another case shows the ratios as calculated by the Division of Assessment Standards after the adjustment by the 1.43 factor. The third case shows the ratios as calculated by the Senate Interim Committee on State and Local Taxation with the use of the appraisal and assessment data collected by the Division of Assessment Standards. As pointed out earlier in this chapter, the differences that are shown between the calculations made by the Division of Assessment Standards are those that result from the different techniques of rounding the ratios. The differences that are shown between the calculations of the Senate Interim Committee on State and Local Taxation and those of the State Board of Equalization are those that result from the different methods of weighting the individual ratio figures for each county.

TABLE IV

FREQUENCY DISTRIBUTIONS OF COUNTY-WIDE RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR THE SAMPLE CONDUCTED BY THE STATE BOARD OF EQUALIZATION, 1951

Class Interval	Number of Counties According to Published Findings of the State Board of Equalization	Number of Counties According to Calculations of the State Board of Equalization	Number of Counties According to Calculation of Senate Interim Committee on State and Local Taxation as based on appraisals of the State Board of Equalization
12.00 to 13.99	—	—	1
14.00 to 15.99	—	—	4
16.00 to 17.99	—	1	3
18.00 to 19.99	—	2	3
20.00 to 21.99	—	6	7
22.00 to 23.99	—	7	5
24.00 to 25.99	1	13	11
26.00 to 27.99	1	14	8
28.00 to 29.99	1	7	4
30.00 to 31.99	1	8	5
32.00 to 33.99	10	—	4
34.00 to 35.99	2	—	2
36.00 to 37.99	14	—	—
38.00 to 39.99	7	—	1
40.00 to 41.99	7	—	—
42.00 to 43.99	6	—	—
44.00 to 45.99	6	—	—
46.00 to 47.99	2	—	—
48.00 to 49.99	—	—	—
50.00 and over	—	—	—
Total	58	58	58

SOURCE: From data in Tables I, II, and III.

Although the sample used by the Senate Interim Committee on State and Local Taxation was based upon that used by the State Board of Equalization, the results of the two surveys are not fully comparable. In the first place, the survey of the Senate Interim Committee on State and Local Taxation was conducted during 1952, while that of the State Board of Equalization was conducted during 1951. The improvements upon the individual sample parcels of property could, of course, have changed in the time interval between the two surveys, so that the actual appraisals would not be comparable for these parcels of property. In the same sense, the market values of these parcels may have changed over the period of time involved, to disturb the comparability of the individual appraisals. Nevertheless, these considerations would not prevent the comparison of the *ratios* of assessed to market value either for the individual parcels of property or for any given county as a whole, for it is perfectly correct to assume that any such changes in the physical features of the property or in the market value of the property should be matched by changes in the assessed value of the property. In the second place, however, as has previously been explained, the sample used by the Senate Interim Committee on State and Local Taxation was not as complete as that used by the State Board of Equalization, so that, although individual ratios may be compared, the ratios for some counties and for the State as a whole are constructed upon a smaller base than that used by the State Board of Equalization. Thus, the findings of the Senate Interim Committee on State and Local Taxation are presented below with no attempt at a careful comparison with the findings of the State Board of Equalization. Some comments are included later in the present chapter by way of comparing these two surveys, but it is felt that the data do not warrant any clear quantitative comparison. A comparison of the ratios on individual parcels of property is provided as part of the data in Appendix F.

The techniques of sampling and the techniques of appraisal used by the Senate Interim Committee on State and Local Taxation in the 1952 survey were briefly described in Chapter XV. It remains in this chapter to show the appraisal results and to describe and illustrate the techniques used to interpret these results. As in the earlier chapter, the method of presentation involves the detailed analysis of one county in the State for illustrative purposes, with the background data for all counties included in Appendix F. The illustration of the techniques is followed by a summarization of the information for all counties and an interpretation of the results.

TABLE V

RATIOS OF ASSESSED VALUE TO MARKET VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN IMPERIAL COUNTY ON APPRAISALS BY THE SENATE INTERIM COMMITTEE ON STATE AND LOCAL TAXATION, 1952

Appraisal Number	*Appraised Value—Committee Study 1952* (1)	*Assessed Value 1952* (2)	*Assessed Value as a Percentage of Appraised Value* (3)
1	$65,000	$19,350	29.77
2	35,000	4,790	13.69
3	8,750	2,065	23.60
4	3,200	415	12.97
5	4,600	565	12.28
6	7,250	1,650	22.76
7	10,000	2,155	21.55
8	30,000	8,405	28.02
9	70,000	17,645	25.21
10	170,000	43,900	25.82
11	125,000	28,705	22.96
12	3,800	1,085	28.55
13	14,000	3,405	24.32
14	36,000	2,040	5.67
15	33,750	4,500	13.33
16	27,300	2,340	8.57
17	30,000	3,375	11.25
18	64,000	7,800	12.19
19	10,000	1,570	15.70
20	15,600	2,280	14.62
21	6,500	3,100	47.69
22	4,500	890	19.78
23	8,500	3,200	37.65
Total	$782,750	$165,230	21.11

SOURCE: Appendix F.

Table V shows the basic appraisal data and the individual ratio computations for Imperial County. In Imperial County it was possible for the Senate Interim Committee on State and Local Taxation to sample 23 of the 37 parcels of property originally included in the sample of the State Board of Equalization. For these 23 parcels of property the committee appraisal is indicated in column 1 of Table V and the assessed value for 1952, as reported by the county assessor, is indicated in column 2. In column 3 is shown the percentage of assessed value to appraised value for each parcel of property in the sample. The final figure shown in column 3 is determined by dividing the total assessed value of column 2 by the total appraised value of column 1. Thus, the figure of 21.11 percent represents the "total value ratio" for Imperial County as determined by the appraisals of the Senate Interim Committee on State and Local Taxation. It is here claimed that, for purposes of intercounty equalization, this "total value ratio" is the significant figure to express the countywide ratio of assessed to market value. This claim is supported later in the present chapter.

Table VI shows the computation of these "total value ratios" for all 55 of the counties studied in the present survey, together with the state-wide ratio of assessed value to market value. The state-wide ratio is computed in the same way as the individual ratios for each county, namely by dividing the total assessed value of all parcels of property in the sample by the total assessed value of all parcels of property in the sample and multiplying the result by 100. With these computations the state-wide ratio of assessed to market value turns out to be 27.30 percent, with the individual county ratios ranging from a high of 43.11 percent to a low of 12.95 percent. As pointed out earlier in the report, it was impossible to sample parcels of property in the counties of Amador, Inyo, and Mono in the limited time available for this survey. For the 55 counties that were sampled, the results might be summarized as follows:

Number of counties with ratios higher than 10 percent above the state-wide ratio	16
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but above the state-wide ratio	3
Number of counties with ratios equal to the state-wide ratio	1
Number of counties with ratios within 10 percent tolerance of the state-wide ratio but below the state-wide ratio	5
Number of counties with ratios lower than 10 percent below the state-wide ratio	30
Total number of counties	55

If intercounty equalization orders were to be issued on the basis of these findings, it would be necessary to lower the assessments in 16 counties and to raise the assessments in 30 counties, so that 47 counties would then have ratios of assessed to market value equal to the state-wide average of 27 percent. The remaining counties would have ratios of assessed to market value that were within the 10 percent tolerance limits on either side of the state-wide ratio.

Although it is felt that the "total value ratios" shown in Table VI are the only ratios that need be computed for purposes of providing a basis for intercounty equalization, it is nevertheless clearly necessary to compute other figures to describe the results of the sampling operation and to describe the probable relationship between the sample results and the results that would have been obtained if a measure of these ratios had been obtained for all parcels of property in the population. Implicit in the sampling operation is the expectation that not all of the ratios of assessed to market value will be identical within a given county. The problem of providing a summary description of the sample, then, takes the first form of an attempt to discover a central tendency in the ratio findings by computing one or several descriptive measures. The search for a single figure that may be taken to be representative of the entire distribution of ratios is not complete, however, until a description has been offered of the scatter of the ratios around the "representative" figure. An average is significant as a measure of central tendency only if it can be shown that a central tendency exists and that the distribution of items in the sample shows some concentration. The most common measures of central tendency are, of course, the arithmetic mean, the median, and the mode; while the most common measures of the distribution about the average are the range and the standard deviation. All of these measures, with the exception of the mode, have been computed for each of the counties in the sample, although in some cases the smallness of the sample in a given county did not permit the use of all of the measures.

TABLE VI

RATIOS OF ASSESSED VALUE TO MARKET VALUE FOR 55 CALIFORNIA COUNTIES AND FOR THE STATE AS A WHOLE AS BASED UPON APPRAISALS OF SENATE INTERIM COMMITTEE ON STATE AND LOCAL TAXATION, 1952

County	*Total Appraised Value of Sample*	*Total Assessed Value of Sample*	*Assessed Value as a Percentage of Appraised Value*
Alameda	$6,134,418	$2,124,450	34.63
Alpine	86,300	14,345	16.62
Butte	798,500	166,510	20.85
Calaveras	227,050	73,590	32.41
Colusa	503,200	98,685	19.61
Contra Costa	1,211,410	251,855	20.79
Del Norte	1,222,880	197,185	16.12
El Dorado	216,250	52,600	24.32
Fresno	2,514,587	894,905	35.59
Glenn	227,100	66,920	29.47
Humboldt	932,450	204,050	21.88
Imperial	782,750	165,230	21.11
Kern	532,245	89,535	16.82
Kings	131,237	32,630	24.86
Lake	132,500	28,950	21.85
Lassen	184,600	33,040	17.90
Los Angeles	10,973,952	3,430,250	31.26
Madera	413,000	79,510	19.25
Marin	1,225,998	191,290	15.60
Mariposa	120,750	18,835	15.60
Mendocino	348,500	63,900	18.34
Merced	212,400	37,350	17.58
Modoc	121,500	22,665	18.65
Monterey	646,300	179,665	27.80
Napa	356,070	88,500	24.85
Nevada	120,500	37,910	31.46
Orange	1,031,400	297,360	28.83
Placer	252,340	75,090	29.76
Plumas	152,350	48,775	32.02
Riverside	1,177,028	356,480	30.29
Sacramento	1,468,350	326,870	22.26
San Benito	235,450	63,970	27.17
San Bernardino	4,041,750	930,980	23.03
San Diego	2,263,750	476,440	21.05
San Francisco	4,588,500	1,766,680	38.50
San Joaquin	889,100	302,415	34.01
San Luis Obispo	627,800	153,450	24.44
San Mateo	2,155,260	520,425	24.15
Santa Barbara	988,050	261,310	26.45
Santa Clara	2,130,750	678,780	31.86
Santa Cruz	640,808	267,000	41.67
Shasta	210,359	54,165	25.75
Sierra	107,750	39,590	36.74
Siskiyou	130,062	26,225	20.16
Solano	755,857	187,780	24.84
Sonoma	858,000	261,785	30.51
Stanislaus	843,800	166,440	19.73
Sutter	451,350	106,625	23.62
Tehama	282,200	84,440	29.92
Trinity	58,250	13,945	23.94
Tulare	704,763	124,090	17.61
Tuolumne	30,500	13,150	43.11
Ventura	1,271,200	181,760	14.30
Yolo	2,558,750	331,335	12.95
Yuba	479,250	96,045	20.04
Total	$61,761,224	$16,857,755	27.30

SOURCE: From data in Appendix F.

In addition to these measures which are used to describe the sample in a summary way, it is necessary, in any sampling operation such as this, to place the sample data in proper perspective as a part of the population from which the sample was selected. It is the purpose of the present investigation to gain certain information about the ratios of assessed to market value in each county of the State, but the only definite knowledge that has been obtained relates to the sample. The question now arises as to the reliability of the sample as an estimate of the characteristics of the population from which the sample was drawn. It will be recognized that this is the question that involves the use of statistical inference. The most common tool in this case is that known as the standard error of the arithmetic mean. This, too, has been computed for each of the counties for which the data were available in sufficient quantity to warrant the calculations.[1]

Although it is held that these measures are essential if any statistical meaning is to be extracted from the appraisal figures or from the computed ratios, it is also necessary to emphasize that these additional computations should not be confused with the "total value ratios" already computed and illustrated above. The "total value ratios" are, in reality, weighted averages of the sample ratios, and could be computed by multiplying each ratio by the market value associated with that parcel of property, adding all of the weighted ratios, and dividing by the sum of the weights (that is, by the sum of the market values). The point to be recognized, however, is that this kind of weighting system is not essential to give the ratios a meaning. It is made necessary only by the character of the problem that is being posed. If the problem under examination were *intra*county equalization, and if it were desired to compare the assessment ratios of individual parcels of property, such a weighting system would tend to obscure the equity relationships that are supposed to be associated with proportional taxation of individual property owners under the property tax. If, however, as in the present case, the problem under examination is that of *inter*county equalization this system of weighting by market value takes on new significance. It has been stated several times in this report that the only fundamental issue that gives meaning to the necessity for intercounty equalization is the existing pattern of the allocation of state aid to local districts. But it is recognized that such state aid is based upon the *total* assessed valuation within given taxing jurisdictions and not upon some abstract "level" of assessment. It follows that the computation that is relevant for purposes of describing intercounty assessment patterns is that which is based upon total values rather than that which emphasizes the differences between individual assessment ratios within the taxing jurisdiction. The justification for this "total value ratio," however, is not so much inherent in the data as it is in the problem which the data are expected to help solve. Neither must this weighting system that is implied by the use of the "total value ratio" be justified by a desire to make tenuous data appear more reputable. The justification for this type of ratio computation comes from the character of the law that makes it necessary to have intercounty equalization in the first place and not from any fundamental properties of a ratio nor from any unfortunate insufficiencies in the data themselves. Furthermore, it is important to recognize that each of the statistical measures discussed above, including the "total value ratio," must be considered to stand by itself as a separate statistical device with a significance that is in some sense distinct from that of the others. The arithmetic mean, the median, the mode, and the "total value ratio" have, to be sure, the common purpose of describing the distribution of individual ratios within a given county, but they are not correctly considered to be alternative measures of the "true" relationship between assessed values and market values within that county, or within the State as a whole. If these and other parallel measures are combined in some uncertain way in an attempt to derive some figure that can be declared to be *the* ratio of assessed to market value they tend to lose their identity and the significance that they would otherwise possess. As a result, the computation of the arithmetic mean, the median, and the standard deviation for purposes of this study should not be considered to be part of the process of determining a ratio of assessed to market value for a given county that will be useful in an intercounty comparison, but part of the process of describing the sample that yields a measure of such a ratio. As such, of course, they carry an important meaning as far as *intra*county equalization is concerned and, in other studies, may have this meaning as their most emphatic justification. It is true that the relevant sections of the Revenue and Taxation Code (as added by the Statutes of 1949) are themselves somewhat vague in this regard. Section 1831 of the Revenue and Taxation Code does, to be sure, require the State Board of Equalization to conduct an annual survey in each county "to determine the relationship between the total value of land, improvements and tangible personal property entered upon the roll by the assessor, and the total market value thereof," but Section 1832 requires merely that the State Board of Equalization shall "determine also the average relationship between the assessed value of such property and the market value thereof for the State as a whole." As has been pointed out, there are several kinds of averages and, unfortunately, it makes a great deal of difference to the final results as to which of these averages is used to support equalization orders. It is only when the underlying reasons for intracounty equalization on the one hand and intercounty equalization on the other hand are clearly recognized that the ambiguity can be removed from the administrative processes. Any county, for example, interested in discovering the status of assessment equalization within its own borders would do well to emphasize such measures as the arithmetic mean, the median, the mode, and the standard deviation of the individual ratios computed for individual parcels of property for such measures suitably describe, in a summary fashion, the extent of the inequality of the property tax burdens as these are borne within a uniform rate area. But the inequality between counties in the receipt of state aid is much more closely allied to the total assessment roll than to the composition of that assessment roll.

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[1] Any of these statistical devices, either of the deductive or the inductive type, may be further explored in any of the elementary statistical textbooks. See, for example, Mills, F. C., *Statistical Methods*, New York, Henry Holt and Company, revised edition, 1938, Chapters IV, V, and XIV; or Croxton, F. E., and Cowden, D. J., *Applied General Statistics*, New York, Prentice-Hall, 1945, Chapters IX to XII, inclusive.

Table VII shows a series of descriptive measures that relate to the sample ratios in each of the 55 counties tested. In addition, column 7 of Table VII shows the standard error of the arithmetic mean for the majority of the counties. The figures of column 2 are, of course, obtained merely by adding all of the computed individual assessment ratios within any one county and dividing the total by the number of parcels of property in the sample. The medians of the sample ratios are shown in column 3 of Table VII. The median value of 17.50 for Alameda County, for example, means simply that, of the 65 parcels of real property sampled in this county, 32 parcels had ratios that were higher than 17.50 while 32 had ratios that were lower than 17.50. Columns 4 and 5 of Table VII show the first measure of dispersion in the sample ratios, although in a crude way only. It is apparent from these indications of the high and low ratios in each county, however, that there is a considerable difference in most counties between the two extremes. A much more suitable measure of the dispersion of the sample ratios is provided by the standard deviation figures shown in column 6 of the table for each of the counties with a sufficiently large sample to permit the construction of this measure. The value of the standard deviation indicates that, if the distribution were normal, 68.27 percent of the items in the sample would be included within the range of the arithmetic mean plus and minus the value of the standard deviation. It may be said, for example, that in Alameda County, if the distribution were normal, 68.27 percent of the sample would be included within the range 27.87 percent to 10.77 percent. In general, it may be said that the smaller the value of the standard deviation the greater is the concentration of the data.

The standard error of the mean, shown for most counties in column 7 of Table VII, represents a test of the reliability of the arithmetic mean of the county samples shown in column 2 of the table as estimates of the true means of the separate populations. If an infinitely large number of samples of 65 items each were drawn from the population of real property parcels in Alameda County and if an arithmetic mean were computed for each sample, it is probable that approximately

TABLE VII

DESCRIPTIONS OF SAMPLE RESULTS AND STANDARD ERROR OF THE ARITHMETIC MEAN IN 55 CALIFORNIA COUNTIES, BASED ON APPRAISAL SURVEY OF SENATE INTERIM COMMITTEE ON STATE AND LOCAL TAXATION, 1952

County	*Number of Parcels in Sample* (1)	*Arithmetic Mean of Sample Ratios* (2)	*Median of Sample Ratios* (3)	*Range of Sample Ratios* *High* (4)	*Low* (5)	*Standard Deviation of Sample Ratios* [a] (6)	*Standard Error of the Arithmetic Mean* (7)
Alameda	65	19.32	17.50	62.52	7.96	8.55	1.07
Alpine	6	29.44	24.93	65.20	0.25	b	b
Amador	0	--	--	--	--	--	--
Butte	23	20.32	18.40	32.87	9.40	6.16	1.31
Calaveras	15	31.19	31.43	40.00	21.33	5.82	1.56
Colusa	18	21.98	20.05	56.59	10.00	11.26	2.73
Contra Costa	39	21.15	20.34	40.00	15.35	4.35	0.71
Del Norte	15	22.83	22.92	34.50	12.75	6.07	1.62
El Dorado	10	27.25	25.32	45.00	14.23	8.41	2.80
Fresno	50	23.97	19.91	64.68	9.09	12.55	1.79
Glenn	11	28.66	28.25	51.08	11.90	13.37	4.23
Humboldt	19	16.88	17.05	27.38	8.46	4.38	1.03
Imperial	23	20.78	21.55	47.69	5.67	9.90	2.11
Inyo	0	--	--	--	--	--	--
Kern	41	18.09	17.24	41.67	4.14	7.09	1.12
Kings	10	26.03	25.85	38.00	20.65	5.46	1.93
Lake	12	26.28	26.89	45.83	8.25	11.01	3.32
Lassen	4	20.67	20.94	34.35	6.47	b	b
Los Angeles	301	23.98	20.06	60.12	10.67	6.99	0.40
Madera	10	21.07	19.88	30.44	13.34	5.77	1.92
Marin	27	20.68	20.36	50.32	8.21	7.88	1.55
Mariposa	9	17.50	17.11	32.83	7.81	b	b
Mendocino	12	19.24	16.34	38.11	12.27	7.49	2.26
Merced	20	20.32	16.46	56.55	10.00	12.99	2.98
Modoc	11	20.66	19.11	37.25	11.80	b	b
Mono	0	--	--	--	--	--	--
Monterey	21	30.36	29.29	54.20	16.43	8.44	1.89
Napa	14	21.55	20.56	41.20	10.53	6.69	1.86
Nevada	7	29.46	31.62	39.91	16.40	b	b
Orange	48	28.17	26.11	59.58	14.72	9.65	1.41
Placer	15	31.19	31.48	48.26	16.39	8.24	2.20
Plumas	8	40.67	45.18	55.09	21.64	b	b
Riverside	40	29.53	27.46	50.09	15.05	8.32	1.33
Sacramento	32	19.86	18.14	30.00	8.89	5.23	0.94
San Benito	19	29.15	27.36	46.72	16.23	8.80	2.07
San Bernardino	133	23.42	20.88	74.12	6.92	10.45	0.91
San Diego	60	21.81	20.11	58.00	6.66	8.87	1.15
San Francisco	58	24.36	18.86	92.47	4.27	15.75	2.09
San Joaquin	38	27.49	26.26	48.70	8.33	8.97	1.47
San Luis Obispo	29	21.42	18.13	52.00	5.52	9.61	1.82
San Mateo	39	22.42	21.52	51.68	6.60	7.34	1.19
Santa Barbara	34	25.31	23.90	50.15	11.26	9.30	1.62
Santa Clara	55	27.26	25.04	72.91	6.35	12.04	1.64
Santa Cruz	37	37.70	34.50	78.77	20.00	11.92	1.99
Shasta	11	28.99	26.17	49.23	19.35	10.91	3.45
Sierra	9	40.48	27.27	100.53	20.56	b	b
Siskiyou	9	20.53	19.75	27.65	15.12	b	b
Solano	20	22.47	21.68	47.88	12.43	7.55	1.73
Sonoma	29	25.82	23.77	59.26	8.00	9.53	1.80
Stanislaus	34	18.95	16.80	34.92	4.24	7.00	1.22
Sutter	18	32.35	31.38	60.46	13.14	12.33	2.99
Tehama	13	25.19	26.27	38.75	15.25	8.76	2.53
Trinity	10	25.72	24.68	49.47	14.93	9.57	3.19
Tulare	31	21.81	22.79	35.63	8.32	7.03	1.28
Tuolumne	2	38.43	38.43	45.76	31.09	b	b
Ventura	50	14.75	13.77	25.08	6.92	4.23	0.60
Yolo	22	17.35	17.45	29.27	9.87	5.34	1.17
Yuba	12	23.93	26.44	32.47	7.20	6.94	2.09

NOTES: [a] Corrected for sample size for all samples of less than 30 items.
[b] Sample not large enough to warrant computation.

SOURCE: Computed from data in Appendix F.

68 out of 100 of these means would lie within plus or minus 1.07 percentage points of the arithmetic mean of 19.32 percent shown in column 2. Interpretations may be attached to each of the figures shown in column 7. It is naturally possible to have greater confidence in the arithmetic mean of the sample as an estimate of the true arithmetic mean of the population in those cases in which the standard error of estimate is relatively small.

Although there are many other statistical descriptions and tests of reliability that might be applied, it is felt that the data available at this time do not warrant further attempts at interpretation. It is nevertheless felt that the measures shown here represent a basic minimum in any study that attempts to make use of the sampling device to derive answers that are to be applied to the entire population of assessments and that are likely to result in marked changes in the level of assessments in one or several counties of the State. As emphasized earlier in this division of the report, all of the interpretations are contingent upon a reasonable proof of the adequacy of the measurements themselves, and these measurements are naturally subject to all of the hazards of appraisal. The most careful use of statistical interpretation cannot assure a purity of the results, but it can have the desirable effect of confining the area of estimation and opinion as closely as possible to the actual work of appraisal. This, to repeat, would appear to be a minimum requirement.

CHAPTER XVII

THE PROBLEMS OF LOCAL ASSESSMENT IN CALIFORNIA

Although admittedly tentative in character, the results of the survey conducted by this committee and the results of the survey conducted by the State Board of Equalization in 1951 must be taken to be strong indications of a lack of uniformity in the ratios of assessed value to market value as between the several counties of the State. Yet, on the assumption that the program of state aid to local districts is to continue to be based, at some point, upon the level of assessment in any taxing jurisdiction, there is an unmistakable *need* for a uniformity of assessments on a broad intercounty basis. But this very program of state aid creates an equally unmistakable motive for the counties of the State to indulge in the practice of competitive underassessment, so that it is highly unrealistic to assume that any lack of intercounty equalization is a disease that will cure itself if only it is allowed to run its course. By the same token, the events of the period from the Riley-Stewart Amendment of 1933 to the Equalization Law of 1949 indicate only too clearly that the existing equalization machinery is incapable of performing the tasks for which it was designed.

These considerations appear to point to but one conclusion—the need for a stronger and more effective equalization law than that which now exists. In the realm of practical policy, however, the answers are not as easy as this simple chain of logic would imply. The imposition of a strong and sudden equalization law might indeed accomplish the ultimate aim of intercounty uniformity of assessment ratios, but it would almost certainly be in danger of creating a severe disruption of local fiscal machinery. However undesirable it may have been in the past for some counties in the State to have received undue benefits as the result of relatively low assessment levels as compared with other counties in the State, the fact remains that a ''shock-treatment'' could produce a fiscal reaction that might very easily make complete recovery more difficult rather than less difficult. Any equalization law that is predicated upon the assumption that the law must be a punitive instrument rather than an instrument to provide for the stability and the equitable operation of the fiscal structure at all levels of government in California must be held to be completely misdirected. But a consideration of these possible difficulties by no means represents an argument in favor of the *status quo* either before or after the 1949 equalization law. It merely represents a warning that a system of controls and mandatory orders, although having the appearance of simplicity and directness, *can* be designed in such a way that its operation will be rough, awkward, and disruptive. It is never possible, of course, to design such controls so that they will be completely smooth in their operation and completely free of burden, but it is a basic prerequisite to legislation in this area that careful consideration be given to making the transition from sickness to health as easy and as free of shock as possible.

In the above comments the dangers of an overly strenuous equalization law were taken for granted. The elements that create these dangers are not so apparent, however, as to obviate the necessity of at least brief comment at this point in the report. Basically, these elements are concerned with practices and indulgences which have become fairly common in the fiscal operations of the counties of California. In this report no attempt is made to excuse these practices. Neither is it the intent of these comments to suggest the immutability of the practices. It is suggested merely that the practices exist; and that they are of such long standing, and, in some cases, involve problems of such magnitude that they cannot be changed overnight. It is clear that any equalization law that attempts to alter the pattern of intercounty equalization must either be applied within the atmosphere which these practices create or it must make some supplementary attempt to change that atmosphere.

The first of these practices relates to the budgetary operations of many of the counties of the State. A full discussion of these operations is beyond the scope of this report, but it is clear that an equalization order requiring any county to increase local assessments by a large amount on an ''across-the-board'' basis could create severe difficulties for some taxpayers of that county if it were not also accompanied by an approximately equivalent reduction in the tax rate applied to the assessed value base. The suddenness with which such equalization orders are typically issued, and the traditional downward inflexibility of property tax rates, in part a result of the practice of determining local budgets after determination of the assessment roll, make this an extremely difficult goal to accomplish in the majority of cases. It may indeed be true that there is little to justify this downward inflexibility of the tax rates but the fact remains that, in the present environment, the desired results would be difficult to attain with the speed that would be required for a smooth adjustment to the new assessment level. This, of course, would be especially difficult if the equalization order also had the effect of transferring some of the burden of the local property tax from the shoulders of the state-assessed taxpayers to the shoulders of the locally assessed taxpayers, whether this transference were justified on other grounds or not.

More important from the point of view of this study, however, is the difficulty created by the obvious lack of uniformity of individual assessments *within* most of the counties of the State. Although the status of intracounty equalization was not explored for its own sake in this report, certain unmistakable indications appeared as part of the material presented in Chapter XVI that there is a pronounced lack of uniformity of these individual assessment ratios. That this lack of uniformity creates inequities within any given taxing jurisdiction cannot be denied. Neither can it be denied that intrajurisdictional equalization of assessments is one of the first prerequisites to the successful operation of the property tax. But it is not so readily apparent that the problems of intracounty equalization carry any implications or involve any difficulties for intercounty equalization. It seems, at first sight, that the two kinds of equalization are quite distinct and should be treated as separate problems. This, indeed, has been a fairly common suggestion in the controversial discussions of the past four years. Certainly the issuance of across-the-board increases in the assessments of a given county do not have the effect of changing the assessment relationships within that county. This, of course, is not entirely true if the equalization orders differentiate between the various classes of property such as land, improvements, and personal property, or between state-assessed taxpayers and locally assessed taxpayers. But the basic conclusion holds, nevertheless, that within any broadly defined class of property the relationships between the individual members of that class are not disturbed by the kind of equalization orders contemplated by the present constitutional and statutory provisions. Thus far the contention appears to be supported that it makes very little difference whether there is or whether there is not a complete intracounty equalization of assessments when any intercounty equalization order is issued. It appears, in other words, that any intercounty equalization order will neither improve nor worsen the internal equity structure of the property tax. If, then, the equalization order would tend to produce greater uniformity *between* counties, and if it would do nothing to disturb any existing uniformity *within* counties, it would seem that all the advantages lie with the issuance of such orders.

It is well known, however, that many counties in California have been engaged in extensive reappraisal programs, by which it is hoped, over a period of years, to make the internal assessment pattern more uniform and to make the assessed values on all properties conform more closely to current market conditions. Some of these counties choose to make adjustments to particular assessments while the program is still in operation, while others appear to prefer to wait until the completion of the program before making the necessary adjustments. Other counties are, of course, engaged in the normal adjustments to particular properties in conjunction with their regular appraisal programs. In any event, it is clear that these individual adjustments, whatever their cause, serve to increase the property tax bills of individual taxpayers, and that these increases may be substantial in any one year. If, then, an equalization order to apply to the entire county is superimposed upon these individual adjustments *the increase in the tax bill over the previous year* may be extreme for some individuals in the county and moderate for others. It may be that it is impossible to register a valid complaint about this increase on grounds of equity, if equity is taken to refer to the relationships between taxpayers in the county at any one *moment* of time. But there is surely some significance to the magnitude of the tax increase that can be borne by an individual taxpayer in any one year (especially if he has been unable to prepare for this increase), so that the effects are likely to be disruptive and burdensome even if they are denied the label "inequitable." It would, however, be a mistake to think that any steps toward greater uniformity of intercounty assessment levels should be delayed until there is perfect intracounty equalization in all counties of the State. It is doubtful that perfection in this latter area can ever be attained, while the problems of nonuniformity in assessment levels as between counties is an immediate problem. But the absence of intracounty uniformity does appear to justify the use of a gradual, step-by-step program of intercounty equalization so that both kinds of improvement may be permitted to develop together.

In the equalization hearings of the State Board of Equalization, both in 1951 and 1952, the point was raised by many of the county representatives that the equalization orders contemplated by the State Board of Equalization would involve the kind of internal disruption described above, and that the State Board of Equalization should, as a result, refuse to issue the contemplated orders until the counties had been able to "put their own houses in order" by completing the reappraisal programs then being conducted by many of the counties. To this argument the reply was given by the State Board of Equalization that this was a problem that was beyond the jurisdiction of the board in view of its constitutional responsibility to assure intercounty uniformity of assessment ratios and in view of the constitutional prohibitions against the issuance by the board of orders that distinguished between any other kinds of property than the broad classes of land, improvements, and personal property. It was claimed that problems of intracounty equalization must be referred to the county boards of supervisors sitting as county boards of equalization and that the State Board of Equalization could not concern itself with these problems in its issuance of the mandatory orders. The validity of this argument presented by the State Board of Equalization cannot be denied, for it involves a relatively simple interpretation of the letter of the California Constitution and the Revenue and Taxation Code. But from the broader legislative point of view the difficulties that are associated with the lack of intracounty uniformity of assessment ratios cannot be brushed aside this easily. It is the contention of this report that in the legislative process the equalization of property tax assessments in California must be viewed as a whole and not as three separate and distinct issues.

If it is considered to be undesirable to extend the jurisdiction of the State Board of Equalization into the area of individual assessments and if it is desired to restrict the equalizing jurisdiction of the board to the broad classes of property mentioned above, and if, in addition, it is recognized that the present provisions for intracounty equalization are made largely ineffective by their practical dependence upon the initiative of individual taxpayers, it follows that intracounty equalization of assessments depends almost entirely upon the assessment process itself. In other words, if the State of California is to obtain a more uniform pattern of assessments *within* the 58 counties, it appears to be necessary to improve and purify the assessment techniques themselves and not to rely upon the review powers of any outside authority. Of course, a decision to exclude the State Board of Equalization as an agency empowered to issue intracounty equalization *orders* by no means precludes the State Board of Equalization from conducting studies to determine the extent to which the intracounty equalization aim has been realized. Nor does it prevent the continuation and extension of the instructional, statistical, and advisory operations of the State Board of Equalization in the field of local assessments. Such operations may, indeed, be considered to be an integral part of the equalization process, although they involve the exercise of no mandatory powers by the State Board of Equalization. By the same token, there would be no need to decrease the present authority of the county boards of equalization, for the existence of such review and revision powers as are now possessed by these boards is essential to the democratic process as a minimal requirement. But it appears to be an irrefutable conclusion, if the basic premises are accepted, that an improvement in intracounty equalization depends, ultimately, upon an improvement in assessment practices and techniques at the local level.

An appreciation of the magnitude of the task of the local assessor is incomplete without an appreciation of the present environment of the assessment process and of the character of the events that have created the assessment problems. It does not seem to be an exaggeration to suggest that the California assessor has faced, since the beginning of World War II, as great a problem as has ever been faced by an assessor in the history of American property taxation. The unparalleled increase in California's population in these years, the migration of industrial establishments of all kinds to California, the enormous amount of new building, the changing pattern of land use through subdivision and the use of previously unexploited areas, and a host of other dynamic characteristics have conspired to create a truly staggering set of problems for the local assessor. Many desert and marginal farm areas formerly could be appraised by the relatively simple device of determining the price per acre that the land in the area was bringing in the market and by the extension of this price to a large number of similar parcels. Now, however, many of these same areas must be appraised by the use of such intricate methods as those which involve square-foot measures, corner influences, closeness to schools and urban transportation, type of construction, and drainage influence on residential use. Subdivisions and new construction have created time-consuming demands, not only through the enlargement of the number of parcels to be placed upon the assessments rolls after analysis, but through the influence which these ventures have had upon the values of other parcels of property. The assessor's time has more and more been taken up with the mechanical task of keeping the rolls and maps up to date, so that it has become increasingly difficult to carry on a regular program of reappraisals for older properties. The difficulties of mass appraisal are always great, but when the mass is increasing and changing in composition at as rapid a rate as in California in the last decade, the difficulties are enormous. The increase in population has not only increased the demands for property in general, it has changed the relative demands for various types of property in various areas and has produced value changes that in some way involve virtually every parcel of property in the State. Through it all the assessor has had to wonder (and eventually decide) whether the increases in such evidences of value as income and rental data and costs represent some permanent value changes or whether they represent temporary phenomena that have little influence upon market value. This problem has been made particularly troublesome by the effects of the wartime and postwar inflation and by the additional fact that this price behavior has not been evenly distributed over the many types of property subject to valuation. The question of whether many of the new industries of the State were "war babies" that would soon expire with the cessation of hostilities was clearly relevant to the assessment process during the war. But it is a question that has by no means lost its relevance in the troubled postwar years. The difficulties that stem from inflationary price changes and allied phenomena have been highlighted in the reappraisal programs recently completed or currently being conducted by many counties. The mechanical difficulties connected with such extensive reappraisal programs mean, in many cases, that a minimum of five years is required for such studies. This, in turn, means that by the time the program has been completed, the findings are well on their way to being out of date. Mass appraisal in a static economy is difficult enough: mass appraisal in an economy as dynamic as California's has proven to be presents a staggering assignment for the local assessors of the State.

It is small wonder that the local assessment machinery has failed to keep pace with these changes in the fields of its application. It may be true that many counties in California have been slow to recognize the changes which are being wrought in the State and the difficulties which these changes inevitably create for the assessor and his staff. There is abundant evidence to indicate that the staff of the local assessor is typically too small and the financial inducements which can be offered for the best technical assistance are too low for the optimum performance of those tasks which the staff is constitutionally required to perform. When it is recognized that the local assessor is confronted with all of the difficulties associated with inadequate resources in the face of large and growing assessment problems, the miracle is not in the poverty of the results as shown by a lack of uniformity of assessment ratios, but in the fact that the results have not been even less satisfactory.

The local assessors and local county governments are by no means absolved by a statement of the enormity of the tasks with which they are faced in California. Nor is the requirement that the assessment results be improved made any the less insistent. But it must be clear that, in spite of constitutional requirements and in spite of equalization laws, the problems of the local assessor are subject to no quick and easy solution. The first step in the process of improvement is a realization by all who are concerned with the assessment process of the character and of the magnitude of the problems. There are strong indications that this first step is gradually approaching fruition. The remaining steps are, of necessity, slow and painful, and attempts to speed the pack are likely to reach an early maximum of success. It is perhaps the main purpose of legislative and administrative policy in this area to assure that the steps are being taken and that they *are* as effective as modern techniques and limited resources will permit.

The problems of the local assessor in California have been recognized by the Senate Interim Committee on State and Local Taxation since 1947, and various measures have been suggested and other measures have been supported to enable a movement toward a solution of these problems. One such measure consisted of a recommendation made by this committee in 1947 to provide for the cooperative undertaking by two or more counties of an arrangement to provide for technical assistance on a temporary or a permanent basis.[1] This recommendation was embodied in Senate Bill 1578, 1947, which was passed by the Legislature and became law by the Statutes of 1947, Chapter 1569. In addition, this committee recognized the difficulties that were involved in the earlier prohibition against the issuance of equalization orders by the State Board of Equalization that related to any finer classification of properties than the total common property assessment on the rolls of each of the counties. As a result, the committee recommended that the jurisdiction of the State Board of Equalization be extended to permit equalization orders that related to the broad classes of property *within* counties, land, improvements, and personal property.[2] This recommendation was embodied in Senate Bill 1355 of 1947, which was passed by the Legislature and became law by the Statutes of 1947, Chapter 663. This provision now appears as the familiar Section 1841 of the Revenue and Taxation Code, quoted earlier in this report. The committee supported one other recommendation designed to improve assessment practices throughout the State. This recommendation became, through Senate Bill 520 of 1947, Section 3693 of the Political Code as added by the Statutes of 1947, Chapter 1523. It was by this provision that the State Board of Equalization was empowered to make a thorough study of assessment practices at the local level and to make recommendations for an improvement of these practices in a series of reports.[3] The content of these studies made by the State Board of Equalization is described briefly below.

This committee has not been alone in its recognition of the problems which face the local assessors in California. The work of the State Board of Equalization conducted pursuant to the provisions of Chapter 1523 of the Statutes of 1947 represents an important step forward in the investigation of assessment procedures and in the careful preparation of suggestions for improvement. In a series of reports which have now been completed for every county in the State except the counties of Los Angeles, San Diego, and San Francisco, the research staff of the State Board of Equalization has analyzed in a general way the economic characteristics of the counties as these characteristics bear upon the assessment problems of those counties. In addition, studies were made of the equipment, personnel, records, and activities of the assessors' offices in all of the counties studied, and on the basis of these studies a series of recommendations was made for each county. These recommendations are very complete and very diverse, so that they cannot be catalogued in any detail in this report. It should be mentioned, however, that the recommendations cover such matters as the maps used by the assessor; the keeping of master property records; the use of ownership indexes to facilitate ready changes in ownership records; the methods of property description; the use of uniform property statment forms; the institution or completion of reappraisal programs to cover all parcels of property in each county; the use of appraisal record sheets to conform to those used by the State Board of Equalization; the expansion of the personnel in various departments; increases in salaries for many of the staff members of the assessors' offices and for the assessors themselves; suggested budgets for each of the assessors' offices in the counties studied; and many other similar matters. These reports appear to have been received by the counties with great interest and, although no particular study was made of this matter for purposes of this report, it is clear that many of the counties have attempted to implement some of the suggested improvements. The State Board of Equalization, through the Division of Assessment Standards, has continued its instructional service and advisory service to the local assessors and the results have, on the whole, been favorable. The demands placed upon the Division of Assessment Standards in this phase of its works have been very great in the last few years, indicating a recognition by county officials of the magnitude of assessment and equalization problems. There is every indication that the work of the Division of Assessment Standards in consulting, advising, and instructing the staffs of the local assessors in the techniques of mass appraisal and the techniques of appraisal to be applied to special types of property is well performed and productive of desirable results.

Many of the local assessors and county boards of supervisors have also been cognizant of the problems of intracounty equalization and the allied problems of intercounty equalization. This has been evidenced by the special fact-finding studies made by some counties and by the extensive reappraisal programs undertaken by other counties. Of course, while these studies and programs are admirable in themselves, they clearly do not answer the problem in any final way. A fact-finding study is a preliminary to a corrective policy, if such policy is found to be necessary. A reappraisal program can, if carefully conducted, have the effect of bringing all appraisals up to date. Unfortunately, many of these reappraisal programs reached their peak activity just at the period when the advisory activities of the State Board of Equalization were most limited. Furthermore, there is an air of finality to most of these reappraisal programs that makes them temporary expedients only. It must be recognized that the equalization problem is not something which can be solved in one year and then forgotten. It is a problem that is as recurrent and as regular as the publication of the assessment rolls themselves. It is, in other words, a problem that must be solved *every year*. If the reappraisal programs now being conducted by many counties were made a permanent part of the assessment machinery and if similar additions were made to the assessment machinery of each county of the State it might be declared that the solution of the problems of intracounty and intercounty equalization was approaching realization. It is true that such programs are extremely expensive, but expenses of this magnitude appear to be inevitable if the fiscal structure of local governments in California is to continue to be based upon the property tax and if the allocation of various kinds of state funds is to continue to be based upon assessed valuations.

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[1] *Report of Senate Interim Committee on State and Local Taxation*, Part Two, "State and Local Government Finance in California," Sacramento, 1947, p. 392.

[2] *Ibid.*

[3] *Ibid.*

Thus, although the basic problems of assessment equalization are recognized in many quarters, it is clear that there is still a great amount of work which must be done in this field. One of the most significant gaps in the entire program has been the lack of factual evidence that will testify to the degree of dispersion in the ratios of assessed value to market value both on an intracounty basis and on an intercounty basis. The counties themselves naturally have some of these facts at their disposal but this committee is convinced that these facts do not exist in sufficient quantity and are not sufficiently intense in their description of the problem to answer all of the questions that are part of the assessment process. In addition, the State Board of Equalization has collected an extremely valuable set of facts that relate to the problems under discussion. But here, too, the facts are both quantitatively and qualitatively limited and do little more than point to the areas that require further investigation. The study conducted by this committee has attempted to fill in at least part of the gap, but even here the significance of the study lies more in the fact that it emphasizes the areas that need exploration than in the fact that it provides all of the answers. That these facts must be collected and interpreted before the true character of the problems can be recognized, let alone before a final positive policy can be formulated, is perhaps the strongest conclusion which this study of the Senate Interim Committee on State and Local Taxation supports.

APPENDIX

APPENDIX A

Sample Cost Factor and Condition Percent Tables Used by the Valuation Division of the State Board of Equalization in the Computation of Reproduction Cost New Less Depreciation

EXHIBIT I. COST FACTOR TABLE USED BY THE VALUATION DIVISION OF THE STATE BOARD OF EQUALIZATION IN THE 1951 VALUATION OF TELEPHONE AND TELEGRAPH COMPANIES

	Structures T-1	Pole lines T-2	Aer. cable T-3	U. G. cable T-4	Bur. cable T-5	Ex. aer. wire T-6	Toll aer. wire T-7	U.G. conduit T-8	Station apparatus T-9	C.O.E. manual T-10	C.O.E. panel T-11	C.O.E. step-by-step T-12	Furn. and off. equip. T-13
1913	413	368	263	298	269	240	239	422	285	261	----------	----------	257
1914	429	386	267	308	276	268	255	422	285	261	----------	----------	257
1915	407	414	244	308	259	252	230	406	285	261	----------	----------	257
1916	369	368	192	252	211	200	157	391	285	261	----------	----------	245
1917	307	311	167	217	183	185	134	270	225	261	----------	----------	216
1918	260	273	154	194	165	162	136	222	220	183	----------	----------	190
1919	220	239	167	200	176	165	155	200	217	183	----------	----------	157
1920	187	188	146	183	157	168	143	172	166	164	148	----------	129
1921	220	195	179	215	187	150	161	156	157	134	148	143	162
1922	227	209	204	227	207	152	180	170	166	134	148	149	152
1923	216	207	187	210	189	168	179	187	169	156	164	152	152
1924	220	214	196	215	196	178	177	185	172	156	175	148	167
1925	224	220	188	210	191	188	186	193	168	169	180	162	172
1926	227	220	192	210	193	190	189	194	174	180	180	166	172
1927	229	220	194	227	202	187	200	187	189	186	184	169	172
1928	229	225	204	227	207	180	189	185	205	203	192	187	172
1929	233	223	213	231	215	187	179	185	223	222	207	192	172
1930	242	216	206	237	213	182	196	185	238	234	220	215	178
1931	269	220	223	237	222	187	243	191	235	203	197	200	184
1932	291	218	217	219	211	195	263	194	228	202	197	200	184
1933	296	223	204	227	207	200	248	196	223	200	192	195	184
1934	273	225	231	223	217	195	214	198	183	180	167	167	184
1935	269	218	217	210	204	190	205	198	174	175	156	156	184
1936	256	205	204	204	196	185	200	194	166	173	156	156	178
1937	233	195	192	198	187	173	177	187	163	175	157	153	167
1938	229	184	204	204	196	172	186	185	163	186	190	175	190
1939	227	180	202	202	194	172	184	185	163	186	189	175	183
1940	222	179	192	192	185	167	179	185	154	169	164	164	172
1941	209	175	196	198	191	162	171	181	154	169	164	164	172
1942	193	170	181	181	174	157	171	178	149	164	159	159	160
1943	182	166	179	179	172	153	164	172	149	159	152	152	152
1944	176	161	179	179	172	148	159	170	148	156	148	148	152
1945	171	150	175	175	169	147	155	170	146	154	148	148	148
1946	151	132	148	142	143	128	132	146	129	137	136	136	128
1947	118	113	125	121	120	117	120	122	112	117	118	118	114
1948	102	107	106	104	104	105	107	107	105	105	105	105	103
1949	104	105	102	102	100	103	107	104	103	103	103	103	103
1950	100	100	100	100	100	100	100	100	100	100	100	100	100

Base Year: 1936:

The cost factors shown in this exhibit were constructed to apply to the valuations made by the Division of Assessment Standards of the State Board of Equalization as of the first Monday in March, 1951. As indicated, they are calculated from index numbers constructed with 1936=100. In determining the Reproduction Cost New of pole lines, for example, the Valuation Division would first determine the year of installation and the historical costs associated with that installation. If the pole lines involved had been installed in 1930, the Historical Cost New would simply be multiplied by the factor 216 to determine the present cost of installation, or, in other words, the Reproduction Cost New of this type of property. The other columns in the exhibit, showing the cost changes for other major categories of the property of telephone and telegraph companies, are to be interpreted in the same way.

EXHIBIT II. CONDITION PERCENT TABLE USED BY THE VALUATION DIVISION OF THE STATE BOARD OF EQUALIZATION IN THE VALUATION OF ALL COMPANIES

Condition percent at 5 percent interest and expectancy in years of average survivors of property groups with average lives of 10 to 80 years.

Age	10	15	20	25	30	35	40	Age	45	50	55	60	65	70	75	80	Age
1	91-9	95-14	96-19	98-24	98-29	99-34	99-39	1	99-44	99-49	99-54	100-59	100-44	100-69	100-74	100-79	1
2	82-8	89-13	93-18	95-23	96-28	97-33	98-38	2	98-43	99-48	99-53	99-58	99-63	99-68	100-73	100-78	2
3	73-7	84-12	89-17	92-22	95-27	96-32	97-37	3	97-42	98-47	98-52	99-57	99-62	99-67	99-72	99-77	3
4	64-6	78-11	85-16	89-21	93-26	94-31	95-36	4	96-41	97-46	98-51	98-56	98-61	99-66	99-71	99-76	4
5	55-5	73-10	81-15	86-20	91-25	92-30	94-35	5	95-40	96-45	97-50	98-55	98-60	98-65	99-70	99-75	5
6	47-5	62-9	78-14	84-19	88-24	91-29	93-34	6	94-39	96-44	96-49	97-54	98-59	98-64	98-69	99-74	6
7	39-4	61-8	78-13	81-18	86-23	89-28	92-33	7	93-38	95-43	96-48	96-53	97-58	97-63	98-68	98-73	7
8	31-3	55-8	69-12	78-17	84-22	87-27	91-32	8	92-37	94-42	95-47	96-52	97-57	97-62	98-67	98-72	8
9	24-3	50-7	65-12	75-16	82-21	86-26	89-31	9	91-36	93-41	94-46	95-51	96-56	97-61	97-66	98-71	9
10	19-2	44-6	61-11	72-16	79-20	84-25	88-30	10	90-35	92-40	94-45	95-50	96-55	96-60	97-65	98-70	10
11	14-2	39-5	57-10	69-15	77-20	82-25	86-29	11	89-34	91-39	93-44	94-49	95-54	96-59	97-64	97-69	11
12	11-1	34-5	53-9	65-14	74-19	80-24	85-29	12	88-33	90-38	92-43	94-48	95-53	96-58	96-63	97-68	12
13	8-1	29-4	48-8	62-13	72-18	78-23	83-28	13	87-33	89-38	91-42	93-47	94-52	95-57	96-62	97-67	13
14		25-4	44-8	59-12	69-17	76-22	82-27	14	85-32	88-37	91-42	92-46	94-51	95-56	96-61	96-66	14
15		21-3	40-7	56-11	66-16	74-21	80-26	15	84-31	87-36	90-41	92-46	93-50	94-55	95-60	96-65	15
16		18-3	36-6	52-11	64-15	72-20	78-25	16	83-30	86-35	89-40	91-45	93-50	94-55	95-60	96-65	16
17		15-2	33-6	49-10	61-15	70-19	76-24	17	81-29	85-34	88-39	90-44	92-49	93-54	95-59	95-64	17
18		12-2	30-5	46-9	58-14	68-18	75-23	18	80-28	84-33	87-38	90-43	92-48	93-53	94-58	95-63	18
19		10-2	26-5	43-9	56-13	65-18	73-22	19	78-27	83-32	86-37	89-42	91-47	93-52	94-57	95-62	19
20			23-4	39-8	53-12	63-17	71-22	20	77-26	82-31	85-36	88-41	90-46	92-51	93-56	94-61	20
21			21-4	37-7	50-11	61-16	69-21	21	76-25	80-30	84-35	87-40	90-45	91-50	93-55	94-60	21
22			18-3	34-7	48-11	59-15	67-20	22	74-25	79-29	83-34	86-39	89-44	91-49	93-54	94-59	22
23			16-3	31-6	45-10	56-15	65-19	23	73-24	78-29	82-33	86-38	88-43	90-48	92-53	93-58	23
24			14-3	28-6	42-9	54-14	64-18	24	71-23	77-28	81-32	85-37	88-42	90-47	92-52	93-57	24
25			11-2	26-5	40-9	52-13	62-18	25	69-22	75-27	80-32	84-37	87-41	89-46	91-51	92-56	25
26			8-2	23-5	37-8	49-12	60-17	26	68-21	74-26	79-31	83-36	86-41	89-45	91-50	92-55	26
27				21-4	35-8	47-12	58-16	27	66-21	73-25	78-30	82-35	85-40	88-45	90-49	92-54	27
28				19-4	32-7	45-11	56-15	28	64-20	71-24	77-29	81-34	84-39	87-44	90-49	91-53	28
29				17-3	30-7	43-10	54-15	29	62-19	70-24	76-28	80-33	84-38	87-43	89-48	91-52	29
30				16-3	28-6	41-10	52-14	30	61-18	68-23	74-28	79-32	83-37	86-42	88-47	90-51	30
31				14-3	26-6	38-9	50-13	31	59-18	67-22	73-27	78-31	82-36	85-41	88-46	90-51	31
32				13-3	24-5	36-9	48-13	32	57-17	65-21	72-26	77-31	81-35	85-40	87-45	89-50	32
33				11-2	22-5	34-8	46-12	33	56-16	64-20	71-25	76-30	80-34	84-39	86-44	89-49	33
34				10-2	20-4	32-8	44-11	34	54-15	62-20	69-24	75-29	79-34	83-39	86-43	88-48	34
35					19-4	30-7	42-11	35	52-15	61-19	67-24	74-28	78-33	82-38	85-42	88-47	35
					17-4	28-7	40-10	36	50-14	59-18	66-23	73-27	78-32	82-37	85-41	87-46	36
	124	10-3			16-3	26-6	38-10	37	48-14	57-18	65-22	71-27	77-31	81-36	84-41	87-46	37
	123	11-3			14-3	25-6	36-9	38	47-13	56-17	64-21	70-26	76-31	80-35	83-40	86-45	38
	122	12-3			13-3	23-5	34-9	39	45-12	54-17	63-21	69-25	75-30	79-34	82-39	85-44	39
	121	13-3			12-3	22-5	32-8	40	43-12	53-16	61-20	68-24	74-29	78-34	82-38	85-43	40
	120	14-4			11-2	20-5	31-8	41	41-11	52-15	60-19	67-24	73-28	77-33	81-37	84-42	41
	119	15-4			10-2	19-4	29-7	42	40-11	50-14	58-19	65-23	72-27	76-32	80-37	84-41	42
	118	16-4				17-4	28-7	43	38-10	48-14	57-18	64-22	70-27	75-31	79-36	83-41	43
	117	17-4				16-4	26-6	44	36-10	46-13	55-17	63-22	69-26	74-30	79-35	82-40	44
	116	18-5	10-3			15-3	25-6	45	35-9	45-13	54-17	61-21	68-25	73-30	78-34	82-39	45
	115	18-5	11-3			14-3	23-6	46	33-9	43-12	52-16	60-20	67-24	72-29	77-34	81-38	46
	114	19-5	12-3			13-3	22-5	47	32-8	42-12	51-15	59-19	66-24	71-28	76-33	80-37	47
	113	20-5	13-3			12-3	21-5	48	30-8	40-11	49-15	57-19	65-23	71-28	75-32	80-37	48
	112	21-6	14-4			11-3	20-5	49	29-7	38-11	47-14	56-18	63-22	70-27	75-31	79-36	49
	111	22-6	15-4			10-2	18-4	50	27-7	37-10	46-14	55-18	62-22	69-26	74-31	78-35	50
	110	23-6	15-4				17-4	51	26-7	36-11	45-13	53-17	61-21	67-25	73-30	77-34	51
	109	23-6	16-4				16-4	52	25-6	34-9	43-13	52-16	60-20	66-25	72-29	76-34	52
	108	24-7	17-5	10-3			15-4	53	24-6	33-9	42-12	51-16	59-20	65-24	71-28	76-33	53
	107	25-7	18-5	11-3			14-3	54	22-6	32-8	41-12	49-15	57-19	64-23	70-28	75-32	54
	106	26-7	19-5	12-3			13-3	55	21-5	30-8	39-11	48-14	56-19	63-23	69-27	74-31	55
	105	27-7	20-5	12-3			12-3	56	20-5	29-7	38-11	47-14	55-18	62-22	68-26	73-31	56
	104	28-8	21-6	13-3			11-3	57	19-5	28-7	37-10	45-14	53-17	61-21	67-25	72-30	57
	103	28-8	22-6	14-4			10-2	58	18-5	27-7	35-10	44-12	52-17	60-21	66-25	71-29	58
	102	29-8	22-6	15-4				59	17-4	26-7	34-10	43-13	51-16	59-20	65-24	71-29	59
	101	30-9	23-6	16-4				60	16-4	24-6	33-9	41-12	50-16	57-19	64-24	70-28	60
	100	31-9	24-7	17-4				61	15-4	23-6	32-9	40-12	48-15	56-19	63-23	69-27	61
	99	32-9	25-7	18-5	10-3			62	14-3	22-5	30-8	39-11	47-15	55-18	62-22	68-26	62
	98	33-9	26-7	19-5	11-3			63	13-3	21-5	29-8	38-11	46-14	54-18	61-22	67-26	63
	97	34-10	27-7	19-5	12-3			64	12-3	20-5	28-8	36-10	45-14	52-17	60-21	66-25	64
	96	34-10	28-8	20-6	13-3			65	11-3	19-5	27-7	35-10	43-13	51-16	59-20	65-25	65
	95	35-11	28-8	21-6	14-3			66	10-2	18-5	26-7	34-10	42-13	50-16	58-20	64-24	66
	94	36-11	29-8	22-6	15-4			67		17-5	25-6	33-9	41-12	49-16	56-19	63-23	67
	93	37-11	30-9	23-6	16-4			68		16-4	24-6	32-9	40-12	48-15	55-19	62-23	68
	92	38-11	31-9	24-7	17-4			69		15-4	23-6	31-9	39-11	47-15	54-18	61-22	69
	91	39-12	32-9	25-7	18-5	10-3		70		14-4	22-6	30-8	38-11	45-14	53-18	60-21	70
	90	40-12	33-9	26-7	18-5	11-5		71		13-3	21-5	29-8	37-11	44-13	52-17	59-21	71
	89	41-12	34-10	26-7	19-5	12-3		72		12-3	20-5	28-8	36-10	43-13	51-17	58-20	72
	88	42-13	35-10	27-7	20-6	13-3		73		11-3	19-5	27-7	34-10	42-13	50-16	57-20	73
	87	43-13	36-10	28-8	21-6	14-4		74		10-3	18-5	26-7	33-10	41-12	49-16	56-19	74
	86	44-14	37-11	29-8	22-6	15-4		75			17-4	25-7	32-9	40-12	48-15	55-19	75
	85	45-14	37-11	30-8	23-6	15-4		76			16-4	24-6	31-9	39-12	47-15	54-18	76
	84	46-14	38-11	31-9	24-6	16-4		77			15-4	23-6	30-8	38-11	46-14	53-18	77
	83	47-15	39-12	32-9	25-7	17-5	10-3	78			15-3	22-6	29-8	37-10	45-14	52-17	78
	82	48-15	40-12	33-9	26-7	18-5	11-3	79			14-3	21-5	28-8	36-10	43-13	51-16	79
	81	49-16	41-13	34-10	27-7	19-5	12-3	80			13-3	20-5	28-8	35-10	42-13	50-16	80
	Age	80	75	70	65	60	55	R^3	Curve								

The "condition percent" table shown in this exhibit is used by the Valuation Division of the State Board of Equalization to determine the Reproduction Cost New Less Depreciation from the Reproduction Cost New and to determine the expected future life of the operative property of the given company for purposes of the capitalized income approach to unit value. The row of figures at the top of the table indicate the average life of the type of property involved and the line of figures shown at the left and right of the table show the present age of the property. The figures in the body of the table show both the expected future life of the property and the present condition percent of the property. Thus, for an item of property with an average total life of 20 years and with a present age of 10 years, the table indicates a present condition of 61 percent good and an expected future life of 11 years. Similarly, for an item of property with an average total life of 75 years and a present age of 70 years, the table shows the present condition of the property to be 53 percent good and the expected future life of the property to be 18 years.

APPENDIX B

Computations of the Valuation Division of the State Board of Equalization Relative to the Determination of Capitalization Rate for the Pacific Telephone and Telegraph Company, 1952

COMPUTATIONS OF THE VALUATION DIVISION OF THE STATE BOARD OF EQUALIZATION RELATIVE TO THE DETERMINATION OF CAPITALIZATION RATE FOR THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, 1952

		1947	*1948*	*1949*	*1950*	*1951*	*5-Year Average*
	Par value common stock outstanding 12-31	$278,757,700	$332,460,200	$406,816,500	$487,946,700	$551,037,700	$411,403,760
	Par value preferred stock outstanding 12-31	82,000,000	82,000,000	82,000,000	82,000,000	82,000,000	82,000,000
	Earned surplus	8,131,917	11,495,111	11,307,030	19,454,953	19,659,259	14,009,654
	Other surplus	--------	--------	--------	--------	--------	--------
	Sub total	368,889,617	425,955,311	500,123,530	589,401,653	652,696,959	507,413,414
A	Par value fund debt outstanding 12-31	250,000,000	400,000,000	400,000,000	400,000,000	430,000,000	376,000,000
B	Total surplus + par value securities	618,889,617	825,955,311	900,123,530	989,401,653	1,082,696,959	883,413,414
C	Market value common stock outstanding 12-31	294,191,120	317,499,491	391,005,577	509,548,588	598,794,464	422,207,848
	Market value preferred stock outstanding 12-31	128,731,472	114,056,916	116,580,876	120,762,056	115,350,958	119,096,456
D	Sub total	422,922,592	431,556,407	507,586,453	630,310,644	714,145,422	541,304,304
E	Market value fund debt outstanding 12-31	257,109,425	393,958,400	407,775,850	416,631,475	429,456,275	380,986,285
F	Total market value of securities	680,032,017	825,514,807	915,362,303	1,046,942,119	1,143,601,697	922,290,589
G	Adjusted stock and funded debt value	757,537,421	869,492,362	983,452,238	1,097,036,675	1,178,984,267	977,300,593
H	Net operating income	17,773,537	34,678,004	40,962,944	58,426,819	57,689,989	41,906,259
I	Amount available for fund debt interest and dividend	17,492,918	35,559,987	40,660,377	58,204,799	56,497,905	41,683,197
J	Amount available for preferred and common dividend	12,727,292	25,734,988	28,535,377	46,079,799	44,276,659	31,470,823
K	Amount available for common dividend	7,807,292	20,814,988	23,615,377	41,159,799	39,356,659	26,550,823
	Funded debt interest paid	4,765,626	9,824,999	12,125,000	12,125,000	12,221,246	10,212,374
	Preferred stock dividend paid	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000
L	Common stock dividend paid	8,223,352	16,942,748	22,911,148	32,736,491	34,156,269	22,994,002
M	Sub total stock dividend paid	13,143,352	21,862,748	27,831,148	37,656,491	39,076,269	27,914,002
N	Total interest and dividends paid	17,908,978	31,687,747	39,956,148	49,781,491	51,297,515	38,126,376
O	Interest on funded debt	7,343,750	12,125,000	12,125,000	12,125,000	13,175,000	11,378,750
P	Number of shares common stock outstanding	2,787,577	3,324,602	4,068,165	4,879,467	5,510,377	4,114,038
	Funded debt as percent of total capital						
	Par value basis. A ÷ B	40.39	48.43	44.44	40.43	39.72	42.56
	Market value basis, E ÷ F	37.81	47.72	44.55	39.80	37.55	41.31
	Weighted average interest rate (P. V.), O ÷ A	2.94	3.03	3.03	3.03	3.06	3.03
	Weighted average interest rate (M. V.), O ÷ E	2.86	3.08	2.97	2.91	3.07	2.99
	Earnings rates[1]						
	Over-all for company, I ÷ F	2.57	4.31	4.44	5.56	4.94	4.52
	Stock (all), J ÷ D	3.01	5.96	5.62	7.31	6.20	5.81
	Stock (common), K ÷ C	2.65	6.56	6.04	8.08	6.57	6.29
	Per share (common), K ÷ P	2.80	6.26	5.80	8.44	7.14	6.45
	Over-all for operating property only, H ÷ G	2.35	3.99	4.17	5.33	4.89	4.29
	Yield rates[1]						
	Over-all, N ÷ F	2.63	3.84	4.37	4.75	4.49	4.13
	Stock (all), M ÷ D	3.11	5.07	5.48	5.97	5.47	5.16
	Stock (common), L ÷ C	2.80	5.34	5.86	6.42	5.70	5.45
	Per share common actual, L ÷ P	2.95	5.10	6.50	7.00	7.00	5.59

[1] In cases where additional securities issued during year, these rates will be too low.

APPENDIX C

Total Assessed Value of Five Sample Public Utility Enterprises by County and by Type of Property, 1951 and 1952

TABLE I

TOTAL ASSESSED VALUE OF THE KERN MUTUAL TELEPHONE COMPANY BY COUNTY AND BY TYPE OF PROPERTY,[a] 1951 AND 1952

	Land		*Improvements*		*Personal Property*		*Total*	
Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
Kern	$7,360	$7,260	$211,440	$219,800	$413,260	$408,610	$632,060	$635,670
San Luis Obispo	--	--	--	--	1,650	1,650	1,650	1,650
Santa Barbara	--	--	--	--	2,740	3,160	2,740	3,160
Ventura	--	--	--	--	--	20	--	20
Total	$7,360	$7,260	$211,440	$219,800	$417,650	$413,440	$636,450	$640,500

NOTE: [a] Excluding solvent credits.
SOURCE: State of California Board of Equalization, Valuation Division.

TABLE II

TOTAL ASSESSED VALUE OF THE PACIFIC GAS AND ELECTRIC COMPANY BY COUNTY AND BY TYPE OF PROPERTY,[a] 1951 AND 1952

	Land		*Improvements*		*Personal Property*		*Total*	
Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
Alameda [b]	$1,645,950	$1,733,070	$28,351,700	$29,503,530	$19,265,130	$20,530,790	$49,262,780	$51,767,390
Alpine	61,970	68,330	841,110	837,340	50	50	903,130	905,720
Amador	309,100	260,800	16,315,980	17,123,450	1,062,480	1,094,980	17,687,560	18,479,230
Butte	419,960	439,500	16,131,780	17,183,700	4,601,480	4,704,450	21,153,220	22,327,650
Calaveras	271,520	275,040	2,537,850	2,653,630	1,462,020	1,511,630	4,271,390	4,440,300
Colusa	10,920	11,530	259,250	713,900	2,125,290	2,240,900	2,395,460	2,966,330
Contra Costa	451,210	754,810	30,332,970	40,681,430	9,202,590	10,150,390	39,986,770	51,586,630
Del Norte	--	--	--	--	--	--	--	--
El Dorado [b]	194,450	192,920	3,647,190	3,773,410	1,452,410	1,490,860	5,294,050	5,457,190
Fresno	310,100	322,200	17,295,230	18,660,880	15,746,510	16,511,220	33,351,840	35,494,300
Glenn	11,080	12,100	421,730	450,540	2,320,760	2,378,150	2,753,570	2,840,790
Humboldt	38,880	104,520	2,636,190	2,981,140	2,919,930	3,232,830	5,595,000	6,318,490
Imperial	--	--	--	--	--	--	--	--
Inyo	--	--	--	--	--	--	--	--
Kern	142,380	193,000	23,085,660	24,662,340	8,469,880	8,984,540	31,697,920	33,839,880
Kings [b]	3,980	5,970	2,289,600	3,845,220	3,083,340	3,212,830	5,376,920	7,064,020
Lake	145,850	146,560	1,404,750	1,406,060	908,630	1,215,680	2,459,230	2,768,300
Lassen	104,680	104,680	85,130	84,490	255,840	257,140	445,650	446,310
Los Angeles	--	--	--	--	--	--	--	--
Madera	351,580	360,720	3,439,500	3,484,810	3,360,890	3,555,100	7,151,970	7,400,630
Marin	163,560	246,550	2,848,370	3,023,760	2,356,380	2,464,390	5,368,310	5,734,700
Mariposa	1,090	1,090	57,000	69,260	676,040	721,930	734,130	792,280
Mendocino	211,920	223,040	1,399,770	1,684,820	2,076,760	2,321,740	3,688,450	4,229,600
Merced	37,520	43,140	1,877,250	2,021,910	4,557,960	4,642,000	6,472,730	6,707,050
Modoc	--	--	--	--	--	--	--	--
Mono	--	--	--	--	--	--	--	--
Monterey [b]	227,170	336,300	20,310,440	29,464,660	5,229,720	5,542,970	25,767,330	35,343,930
Napa	15,970	43,670	1,180,720	1,288,270	1,941,410	1,991,970	3,138,100	3,323,910
Nevada	298,770	301,400	5,730,060	5,737,850	1,488,490	1,515,790	7,517,320	7,555,040
Orange	--	--	--	--	--	--	--	--

TABLE II—Continued

TOTAL ASSESSED VALUE OF THE PACIFIC GAS AND ELECTRIC COMPANY BY COUNTY AND BY TYPE OF PROPERTY,[a] 1951 AND 1952

	Land		*Improvements*		*Personal Property*		*Total*	
Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
Placer	$507,070	$520,890	$10,721,700	$10,818,170	$2,811,450	$2,905,100	$14,040,220	$14,244,160
Plumas	1,693,460	1,691,770	30,855,580	33,119,600	833,510	877,750	33,382,550	35,689,120
Riverside	--	--	--	--	--	--	--	--
Sacramento	387,730	394,790	9,317,150	10,255,780	2,080,080	2,262,340	11,784,960	12,912,910
San Benito	1,830	2,170	2,482,910	3,080,230	610,960	625,280	3,095,700	3,707,680
San Bernardino	27,210	38,090	5,340,320	9,998,700	2,150	8,740	5,369,680	10,045,530
San Diego	--	--	--	--	--	--	--	--
San Francisco[b]	2,638,850	2,795,230	40,052,890	40,785,460	19,078,960	19,513,840	61,770,700	63,094,530
San Joaquin	181,080	172,210	7,316,950	7,721,670	9,132,990	9,411,830	16,631,020	17,305,710
San Luis Obispo	12,720	61,080	336,070	488,460	3,206,050	3,281,080	3,554,840	3,830,620
San Mateo	519,760	534,450	8,094,880	8,874,510	6,264,400	6,560,170	14,879,040	15,969,130
Santa Barbara	10,610	10,610	283,190	302,330	1,736,250	1,780,430	2,030,050	2,093,370
Santa Clara	278,120	281,030	10,025,880	11,230,960	7,874,720	8,123,320	18,178,720	19,635,310
Santa Cruz	550	550	83,610	87,190	225,240	244,120	309,400	331,860
Shasta[b]	1,211,720	1,243,420	33,133,710	33,327,910	4,279,840	4,559,690	38,625,270	39,131,020
Sierra	31,610	29,640	35,490	38,500	150,740	157,360	217,840	225,500
Siskiyou	--	--	--	--	2,210	2,210	2,210	2,210
Solano	53,400	109,490	4,547,120	4,722,690	4,417,620	4,479,620	9,018,140	9,311,800
Sonoma	51,960	95,879	3,476,580	3,778,850	4,631,710	4,782,660	8,160,250	8,657,380
Stanislaus	58,870	67,140	2,983,290	3,347,880	2,062,820	2,148,420	5,104,980	5,563,440
Sutter	7,540	7,540	1,126,780	1,185,530	2,483,440	2,564,000	3,617,760	3,757,070
Tehama	71,210	75,740	1,399,410	1,428,620	2,788,620	2,861,140	4,259,240	4,365,500
Trinity	17,330	18,360	415,800	434,000	768,470	765,500	1,201,600	1,217,860
Tulare	13,940	11,670	845,750	845,480	2,114,190	2,149,280	2,973,880	3,006,430
Tuolumne	270,720	284,300	7,154,560	7,175,160	957,510	1,021,420	8,382,790	8,480,880
Ventura	--	--	--	--	--	--	--	--
Yolo	17,380	37,120	1,305,410	1,515,450	4,163,130	3,972,540	5,485,920	5,525,110
Yuba	266,290	312,760	3,867,520	3,943,550	1,993,380	2,080,850	6,127,190	6,337,160
Total	$13,760,570	$14,976,860	$367,681,780	$409,843,080	$179,234,430	$187,411,020	$560,676,780	$612,230,960

NOTES: [a] Excluding solvent credits. [b] Counties selected for detailed analysis.
SOURCE: State of California Board of Equalization, Valuation Division.

TABLE III

TOTAL ASSESSED VALUE OF THE SAN DIEGO GAS AND ELECTRIC COMPANY BY COUNTY AND BY TYPE OF PROPERTY,[a] 1951 AND 1952

	Land		*Improvements*		*Personal Property*		*Total*	
Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
Orange	$6,370	$7,770	$88,650	$79,130	$335,160	$345,490	$430,180	$432,390
San Diego	739,780	830,830	23,302,110	25,136,720	14,032,980	15,108,820	38,074,870	41,076,370
Total	$746,150	$838,600	$23,390,760	$25,215,850	$14,368,140	$15,454,310	$38,505,050	$41,508,760

NOTE: [a] Excluding solvent credits.
SOURCE: State of California Board of Equalization, Valuation Division.

TABLE IV

TOTAL ASSESSED VALUE OF THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY BY COUNTY AND BY TYPE OF PROPERTY,[a] 1951 AND 1952

	Land		*Improvements*		*Personal Property*		*Total*	
Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
Alameda[b]	$2,744,880	$2,744,880	$844,890	$862,840	$87,180	$87,230	$3,676,950	$3,694,950
Alpine	--	--	--	--	--	--	--	--
Amador	--	--	--	--	--	--	--	--
Butte	--	--	--	--	--	--	--	--
Calaveras	--	--	--	--	--	--	--	--
Colusa	--	--	--	--	--	--	--	--
Contra Costa[b]	1,829,710	1,845,890	1,864,350	2,044,560	824,370	828,510	4,518,430	4,718,960
Del Norte	--	--	--	--	--	--	--	--
El Dorado	--	--	--	--	--	--	--	--
Fresno[b]	1,151,070	1,144,340	1,382,910	1,383,540	718,980	715,690	3,252,960	3,243,570

TABLE IV—Continued

TOTAL ASSESSED VALUE OF THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY BY COUNTY AND BY TYPE OF PROPERTY,[a] 1951 AND 1952

	Land		*Improvements*		*Personal Property*		*Total*	
Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
Glenn	--	--	--	--	--	--	--	--
Humboldt	--	--	--	--	--	--	--	--
Imperial	--	--	--	--	--	--	--	--
Inyo	--	--	--	--	--	--	--	--
Kern	$538,270	$685,200	$2,185,130	$2,146,350	$1,928,920	$1,928,330	$4,652,320	$4,759,880
Kings	76,740	90,280	433,480	431,350	346,600	342,220	856,820	863,850
Lake	--	--	--	--	--	--	--	--
Lassen	--	--	--	--	--	--	--	--
Los Angeles	6,263,270	6,242,410	3,962,600	4,042,740	1,540,030	1,574,060	11,765,900	11,859,210
Madera	16,850	22,350	345,740	345,460	226,590	226,630	589,180	594,440
Marin	--	--	--	--	--	--	--	--
Mariposa	--	--	--	--	--	--	--	--
Mendocino	--	--	--	--	--	--	--	--
Merced	73,580	104,910	551,850	554,880	357,490	356,570	982,920	1,016,360
Modoc	--	--	--	--	--	--	--	--
Mono	--	--	--	--	--	--	--	--
Monterey	--	--	--	--	--	--	--	--
Napa	--	--	--	--	--	--	--	--
Nevada	--	--	--	--	--	--	--	--
Orange	470,740	471,560	1,137,030	1,137,270	792,460	792,680	2,400,230	2,401,510
Placer	--	--	--	--	--	--	--	--
Plumas	--	--	--	--	--	--	--	--
Riverside[b]	312,300	312,850	793,140	792,600	576,220	575,070	1,681,660	1,680,520
Sacramento	--	--	--	--	130	120	130	120
San Benito	--	--	--	--	--	--	--	--
San Bernardino[b]	945,850	944,820	14,735,440	14,683,050	10,109,670	10,165,440	25,790,960	25,793,310
San Diego	2,044,080	2,201,540	1,537,440	1,532,300	882,490	861,740	4,464,010	4,595,580
San Francisco	991,900	999,790	532,200	620,390	58,820	57,520	1,582,920	1,677,700
San Joaquin	379,990	380,600	837,400	832,220	400,450	397,010	1,617,840	1,609,830
San Luis Obispo	--	--	--	--	--	--	--	--
San Mateo	--	--	--	--	--	--	--	--
Santa Barbara	--	--	--	--	830	830	830	830
Santa Clara	--	--	--	--	120	140	120	140
Santa Cruz	--	--	--	--	--	--	--	--
Shasta	--	--	--	--	--	--	--	--
Sierra	--	--	--	--	--	--	--	--
Siskiyou	--	--	--	--	--	--	--	--
Solano	--	--	--	--	--	--	--	--
Sonoma	--	--	--	--	50	50	50	50
Stanislaus	105,900	146,170	409,170	411,080	265,080	253,190	780,150	810,440
Sutter	--	--	--	--	--	--	--	--
Tehama	--	--	--	--	--	--	--	--
Trinity	--	--	--	--	--	--	--	--
Tulare	262,780	263,980	634,360	635,420	508,640	506,410	1,405,780	1,405,810
Tuolumne	--	--	--	--	--	--	--	--
Ventura	--	--	--	--	--	--	--	--
Yolo	--	--	--	--	--	--	--	--
Yuba	--	--	--	--	--	--	--	--
Totals	$18,207,910	$18,601,570	$32,187,130	$32,456,050	$19,625,120	$19,669,440	$70,020,160	$70,727,060

NOTES: [a] Excluding solvent credits and vessels of over 50 tons burden. [b] Counties selected for detailed analysis.

SOURCE: State of California Board of Equalization, Valuation Division.

TABLE V

TOTAL ASSESSED VALUE OF THE SAN DIEGO AND ARIZONA EASTERN RAILWAY COMPANY BY COUNTY AND BY TYPE OF PROPERTY,[a] 1951 AND 1952

	Land		*Improvements*		*Personal Property*		*Total*	
Counties	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*	*1951*	*1952*
Imperial	$15,530	$15,530	$108,150	$161,670	$97,790	$97,790	$221,470	$274,990
San Diego	583,780	657,310	393,370	543,150	314,660	317,300	1,291,810	1,517,760
Total	$599,310	$672,840	$501,520	$704,820	$412,450	$415,090	$1,513,280	$1,792,750

NOTE: [a] Excluding solvent credits.

SOURCE: State of California Board of Equalization, Valuation Division.

APPENDIX D

Number of Parcels of Locally Assessed Real Property Sampled by the State Board of Equalization in 1951 as a Percent of Total Parcels of Locally Assessed Property and as a Percent of an "Adequate" Sample, by Type of Property and by County

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Alameda					
Residential	154,576	500	57	.037	11.400
Industrial	1,672	30	4	.239	13.333
Commercial	10,923	138	10	.092	7.246
Rural	2,658	30	6	.226	20.000
Special	110	4	--	---	----
Subtotal	169,839	702	--	---	----
Vacant land parcels	31,156	98	[a]	---	----
Total	200,995	800	77	.038	9.625
Alpine					
Residential	66	10	4	6.061	40.000
Industrial	2	1	0	---	----
Commercial	13	4	2	15.385	50.000
Rural	20	10	1	5.000	10.000
Special	127	5	0	---	----
Subtotal	228	30	--	---	----
Vacant land parcels	532	19	[a]	---	----
Total	760	49	7	.921	14.286
Amador					
Residential	2,605	105	9	.346	8.571
Industrial	67	6	2	2.985	33.333
Commercial	314	10	2	.637	20.000
Rural	372	15	3	.806	20.000
Special	270	5	2	.741	40.000
Subtotal	3,628	141	--	---	----
Vacant land parcels	3,165	67	[a]	---	----
Total	6,793	208	18	.265	8.654
Butte					
Residential	16,674	170	13	.078	7.647
Industrial	121	9	2	1.653	22.222
Commercial	1,167	23	6	.514	26.087
Rural	2,810	40	13	.463	32.500
Special	405	5	--	---	----
Subtotal	21,177	247	--	---	----
Vacant land parcels	9,931	106	[a]	---	----
Total	31,108	353	34	.109	9.632

NOTE: [a] The State Board of Equalization did not list separately the vacant land parcels sampled but included these in the other categories.
SOURCE: State Board of Equalization, Division of Assessment Standards.

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Calaveras					
Residential	2,479	108	12	.484	11.111
Industrial	85	7	1	1.176	14.285
Commercial	263	12	3	1.141	25.000
Rural	479	15	4	.835	26.667
Special	11	3	1	9.091	33.333
Subtotal	3,317	145	--	---	----
Vacant land parcels	6,658	52	[a]	---	----
Total	9,975	197	21	.211	10.660
Colusa					
Residential	3,068	110	9	.293	8.182
Industrial	15	2	1	6.667	50.000
Commercial	363	11	3	.826	27.273
Rural	894	20	6	.671	30.000
Special	99	4	--	---	----
Subtotal	4,439	147	--	---	----
Vacant land parcels	4,128	93	[a]	---	----
Total	8,567	240	19	.222	7.917
Contra Costa					
Residential	54,788	255	35	.064	13.725
Industrial	208	13	2	.962	15.385
Commercial	1,949	36	9	.462	25.000
Rural	1,765	25	6	.340	24.000
Special	31	3	--	---	----
Subtotal	58,741	332	--	---	----
Vacant land parcels	71,178	138	[a]	---	----
Total	129,919	470	52	.040	11.064
Del Norte					
Residential	2,140	90	7	.327	7.777
Industrial	74	6	1	1.351	16.667
Commercial	332	10	2	.602	20.000
Rural	245	15	3	1.277	20.000
Special	58	3	3	5.172	100.000
Subtotal	2,849	124	--	---	----
Vacant land parcels	3,000	63	[a]	---	----
Total	5,849	187	16	.274	8.556
El Dorado					
Residential	4,259	124	12	.282	9.677
Industrial	45	5	1	2.222	20.000
Commercial	540	13	3	.556	23.077
Rural	826	20	6	.726	30.000
Special	1,327	17	--	---	----
Subtotal	6,997	179	--	---	----
Vacant land parcels	8,070	98	[a]	---	----
Total	15,067	277	22	.151	7.942

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Fresno					
Residential	56,236	230	47	.084	20.435
Industrial	420	19	1	.238	5.263
Commercial	4,772	59	9	.189	15.254
Rural	9,045	130	10	.111	7.692
Special	537	9	--	---	----
Subtotal	71,010	447	--	---	----
Vacant land parcels	89,926	45	[a]	---	----
Total	160,936	492	67	.042	13.618
Glenn					
Residential	2,989	110	7	.234	6.364
Industrial	63	5	1	1.587	20.000
Commercial	439	11	3	.683	27.273
Rural	1,527	25	10	.655	40.000
Special	3	2	--	---	----
Subtotal	5,021	153	--	---	----
Vacant land parcels	3,550	98	[a]	---	----
Total	8,571	251	21	.245	8.366
Humboldt					
Residential	15,160	165	14	.092	8.485
Industrial	319	11	3	.940	27.273
Commercial	1,076	22	6	.558	27.273
Rural	1,899	35	5	.263	14.286
Special	6	3	2	33.333	66.667
Subtotal	18,460	236	--	---	----
Vacant land parcels	13,675	83	[a]	---	----
Total	32,135	319	30	.093	9.404
Imperial					
Residential	6,264	130	18	.287	13.846
Industrial	102	8	1	.980	12.500
Commercial	1,130	22	5	.442	22.727
Rural	2,932	35	13	.443	37.143
Special	5	5	--	---	----
Subtotal	10,433	200	--	---	----
Vacant land parcels	18,886	104	[a]	---	----
Total	29,319	304	37	.126	12.171
Inyo					
Residential	1,579	80	12	.760	15.000
Industrial	19	3	1	5.263	33.333
Commercial	320	10	2	.625	20.000
Rural	173	10	4	2.312	40.000
Special	296	7	--	---	----
Subtotal	2,387	110	--	---	----
Vacant land parcels	3,520	50	[a]	---	----
Total	5,907	160	19	.322	11.875

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Kern					
Residential	42,132	235	44	.104	18.723
Industrial	175	12	2	1.143	16.667
Commercial	4,237	63	11	.260	17.500
Rural	2,710	45	12	.443	26.667
Special	121	3	--	---	----
Subtotal	49,375	358	--	---	----
Vacant land parcels	73,200	76	[a]	---	----
Total	122,575	434	69	.056	15.899
Kings					
Residential	8,081	145	13	.161	8.966
Industrial	40	4	1	2.500	25.000
Commercial	894	20	2	.224	10.000
Rural	2,119	25	6	.283	24.000
Special	1	--	--	---	----
Subtotal	11,135	194	--	---	----
Vacant land parcels	24,350	110	[a]	---	----
Total	35,485	304	22	.062	7.237
Lake					
Residential	4,823	125	12	.249	9.600
Industrial	24	3	1	4.167	33.333
Commercial	492	12	3	.610	25.000
Rural	1,058	15	9	.851	60.000
Special	6	1	1	16.667	100.000
Subtotal	6,403	156	--	---	----
Vacant land parcels	20,800	118	[a]	---	----
Total	27,203	274	26	.0956	9.489
Lassen					
Residential	2,300	97	14	.609	14.432
Industrial	44	4	--	---	----
Commercial	300	8	5	1.667	62.500
Rural	374	10	4	1.070	40.000
Special	739	9	2	.271	22.222
Subtotal	3,757	128	--	---	----
Vacant land parcels	9,500	84	[a]	---	----
Total	13,257	212	25	.189	11.792
Los Angeles					
Residential	1,078,641	190	295	.027	155.263
Industrial	12,384	73	4	.032	5.480
Commercial	71,602	444	33	.046	7.432
Rural	12,058	15	7	.058	46.667
Special	947	4	--	---	----
Subtotal	1,175,632	726	--	---	----
Vacant land parcels	263,364	584	[a]	---	----
Total	1,438,996	1,310	339	.024	25.878

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Madera					
Residential	9,501	158	12	.126	7.595
Industrial	39	5	1	2.564	20.000
Commercial	576	16	5	.868	31.250
Rural	1,899	30	6	.316	20.000
Special	57	3	--	---	----
Subtotal	12,072	212	--	---	----
Vacant land parcels	6,700	97	a	---	----
Total	18,772	309	24	.128	7.767
Marin					
Residential	17,602	175	18	.102	10.285
Industrial	79	4	1	1.266	25.000
Commercial	802	18	5	.623	27.778
Rural	618	10	7	1.133	70.000
Special	5	1	--	---	----
Subtotal	19,106	208	--	---	----
Vacant land parcels	22,535	127	a	---	----
Total	41,641	335	31	.074	9.254
Mariposa					
Residential	1,828	86	6	.328	6.742
Industrial	61	4	--	---	----
Commercial	92	7	2	2.174	28.571
Rural	429	10	4	.932	40.000
Special	196	3	--	---	----
Subtotal	2,606	110	--	---	----
Vacant land parcels	5,136	68	a	---	----
Total	7,742	178	12	.155	6.742
Mendocino					
Residential	10,715	155	7	.065	4.516
Industrial	170	10	2	1.176	20.000
Commercial	894	20	3	.336	15.000
Rural	1,708	30	5	.293	16.667
Special	7	3	2	28.571	66.667
Subtotal	13,494	218	--	---	----
Vacant land parcels	10,580	93	a	---	----
Total	24,074	311	19	.079	6.109
Merced					
Residential	16,135	170	21	.130	12.352
Industrial	73	8	1	1.370	12.500
Commercial	716	16	6	.838	37.500
Rural	4,072	60	11	.270	18.333
Special	3	--	--	---	----
Subtotal	20,999	254	--	---	----
Vacant land parcels	8,800	98	a	---	----
Total	29,799	352	37	.124	10.511

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Modoc					
Residential	2,746	105	12	.437	11.428
Industrial	16	3	--	---	----
Commercial	306	10	5	1.634	50.000
Rural	583	15	8	1.372	53.333
Special	524	8	3	.573	37.500
Subtotal	4,175	141	--	---	----
Vacant land parcels	4,084	86	[a]	---	----
Total	8,259	227	28	.339	12.335
Mono					
Residential	543	50	9	1.657	18.000
Industrial	1	1	--	---	----
Commercial	79	7	1	1.266	14.285
Rural	69	10	3	4.348	30.000
Special	507	9	--	---	----
Subtotal	1,199	77	--	---	----
Vacant land parcels	2,958	32	[a]	---	----
Total	4,157	109	13	.313	11.927
Monterey					
Residential	33,170	210	22	.067	10.476
Industrial	205	10	2	.976	20.000
Commercial	1,936	36	6	.310	16.667
Rural	1,911	35	5	.262	14.285
Special	28	1	--	---	----
Subtotal	37,250	292	--	---	----
Vacant land parcels	13,046	122	[a]	---	----
Total	50,296	414	35	.070	8.454
Napa					
Residential	10,588	155	10	.094	6.452
Industrial	71	6	--	---	----
Commercial	874	19	5	.572	26.315
Rural	1,764	25	6	.340	24.000
Special	12	1	--	---	----
Subtotal	13,309	206	--	---	----
Vacant land parcels	4,340	109	[a]	---	----
Total	17,649	315	21	.119	6.667
Nevada					
Residential	6,349	131	7	.110	5.344
Industrial	55	6	1	1.818	16.667
Commercial	606	14	3	.495	21.428
Rural	572	10	3	.524	30.000
Special	77	7	1	1.299	14.286
Subtotal	7,659	168	--	---	----
Vacant land parcels	5,250	122	[a]	---	----
Total	12,909	290	15	.116	5.172

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Orange					
Residential	52,199	260	41	.079	15.769
Industrial	381	17	2	.525	11.764
Commercial	3,260	52	7	.215	13.461
Rural	5,621	60	14	.249	23.333
Special	214	3	--	---	----
Subtotal	61,675	392	--	---	----
Vacant land parcels	54,376	82	[a]	---	----
Total	116,051	474	64	.055	13.502
Placer					
Residential	9,163	150	11	.120	7.333
Industrial	93	8	2	2.151	25.000
Commercial	694	16	3	.432	18.750
Rural	1,470	30	9	.612	30.000
Special	9	1	2	22.222	200.000
Subtotal	11,429	205	--	---	----
Vacant land parcels	26,151	94	[a]	---	----
Total	37,580	299	27	.072	9.030
Plumas					
Residential	2,778	110	12	.432	10.909
Industrial	63	5	1	1.587	20.000
Commercial	367	11	2	.545	18.181
Rural	155	10	3	1.935	30.000
Special	804	10	4	.498	40.000
Subtotal	4,167	146	--	---	----
Vacant land parcels	5,520	79	[a]	---	----
Total	9,687	225	22	.227	9.778
Riverside					
Residential	40,608	229	30	.074	13.100
Industrial	124	7	2	1.613	28.571
Commercial	2,820	48	10	.355	20.833
Rural	5,100	65	16	.314	24.615
Special	30	3	--	---	----
Subtotal	48,682	352	--	---	----
Vacant land parcels	71,432	92	[a]	---	----
Total	120,114	444	58	.048	13.063
Sacramento					
Residential	54,108	268	31	.057	11.567
Industrial	281	15	3	1.068	20.000
Commercial	4,528	66	11	.243	16.667
Rural	3,820	50	8	.209	16.000
Special	42	3	--	---	----
Subtotal	62,779	402	--	---	----
Vacant land parcels	37,450	76	[a]	---	----
Total	100,229	418	53	.053	12.679

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
San Benito					
Residential	3,509	115	13	.370	11.304
Industrial	24	3	1	4.167	33.333
Commercial	255	10	2	.784	20.000
Rural	939	15	4	.426	26.667
Special	14	1	--	---	----
Subtotal	4,741	144	--	---	----
Vacant land parcels	1,700	106	[a]	---	----
Total	6,441	250	20	.310	8.000
San Bernardino					
Residential	78,010	300	81	.104	27.000
Industrial	345	16	6	1.739	37.500
Commercial	4,025	50	43	1.068	86.000
Rural	7,108	80	17	.239	21.250
Special	2,564	24	1	.039	4.167
Subtotal	92,052	270	--	---	----
Vacant land parcels	135,246	70	[a]	---	----
Total	227,298	340	148	.065	43.529
San Diego					
Residential	105,361	400	49	.047	12.250
Industrial	621	20	2	.322	10.000
Commercial	8,871	105	11	.124	10.476
Rural	5,430	70	15	.276	21.400
Special	753	11	--	---	----
Subtotal	121,036	606	--	---	----
Vacant land parcels	149,738	45	[a]	---	----
Total	270,774	651	77	.028	11.828
San Francisco					
Residential	115,916	440	46	.040	10.454
Industrial	2,300	36	4	.174	11.111
Commercial	14,572	162	13	.089	8.025
Rural	--	--	--	---	----
Special	--	--	--	---	----
Subtotal	132,788	638	--	---	----
Vacant land parcels	19,650	62	[a]	---	----
Total	152,438	700	63	.041	9.000
San Joaquin					
Residential	47,233	250	26	.055	10.400
Industrial	288	16	1	.347	6.250
Commercial	3,469	54	11	.317	20.370
Rural	5,836	90	10	.171	11.111
Special	48	2	--	---	----
Subtotal	56,874	412	--	---	----
Vacant land parcels	32,850	49	[a]	---	----
Total	89,724	461	48	.053	10.412

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
San Luis Obispo					
Residential	10,685	155	26	.243	16.774
Industrial	43	5	1	2.326	20.000
Commercial	1,501	29	9	.600	31.034
Rural	1,789	30	8	.447	26.667
Special	38	3	--	---	----
Subtotal	14,056	222	--	---	----
Vacant land parcels	41,555	94	[a]	---	----
Total	55,611	316	44	.079	13.924
San Mateo					
Residential	63,628	310	34	.053	10.967
Industrial	237	13	3	1.266	23.076
Commercial	4,543	66	16	.352	24.242
Rural	849	10	5	.589	50.000
Special	17	2	--	---	----
Subtotal	69,274	401	--	---	----
Vacant land parcels	69,283	89	[a]	---	----
Total	138,557	490	58	.042	11.837
Santa Barbara					
Residential	20,341	180	25	.123	13.888
Industrial	110	7	3	2.727	42.857
Commercial	1,800	33	7	.389	21.212
Rural	1,381	30	8	.579	26.667
Special	6	3	--	---	----
Subtotal	23,638	253	--	---	----
Vacant land parcels	41,619	107	[a]	---	----
Total	65,257	360	43	.066	11.944
Santa Clara					
Residential	84,960	320	35	.041	10.937
Industrial	827	23	4	.484	17.391
Commercial	5,280	64	13	.246	20.312
Rural	6,490	70	7	.108	10.000
Special	41	4	--	---	----
Subtotal	97,598	481	--	---	----
Vacant land parcels	19,000	79	[a]	---	----
Total	116,598	560	59	.051	10.536
Santa Cruz					
Residential	21,496	185	26	.121	14.054
Industrial	148	9	1	.676	11.111
Commercial	1,233	24	6	.487	25.000
Rural	2.222	25	7	.315	28.000
Special	6	1	--	---	----
Subtotal	25,105	244	--	---	----
Vacant land parcels	32,333	134	[a]	---	----
Total	57,438	378	40	.070	10.582

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Shasta					
Residential	6,337	130	10	.158	7.692
Industrial	53	5	--	---	----
Commercial	989	21	2	.202	9.523
Rural	1,378	20	3	.218	15.000
Special	103	15	4	3.883	28.571
Subtotal	8,860	191	--	---	----
Vacant land parcels	12,056	109	[a]	---	----
Total	20,916	300	19	.091	6.333
Sierra					
Residential	497	50	10	2.012	20.000
Industrial	8	2	--	---	----
Commercial	53	7	3	5.660	42.857
Rural	69	10	2	2.899	20.000
Special	779	9	3	.385	33.333
Subtotal	1,406	78	--	---	----
Vacant land parcels	1,400	40	[a]	---	----
Total	2,806	118	18	.641	15,254
Siskiyou					
Residential	7,729	140	9	.116	6.428
Industrial	155	8	2	1.290	25.000
Commercial	578	14	2	.341	14.285
Rural	1.213	25	6	.495	24.000
Special	13	3	--	---	----
Subtotal	9,688	190	--	---	----
Vacant land parcels	10,467	105	[a]	---	----
Total	20.155	295	19	.094	6.441
Solano					
Residential	14,412	160	17	.118	10.625
Industrial	57	5	1	1.754	20.000
Commercial	880	19	8	.909	42.105
Rural	1,312	20	8	.610	40.000
Special	3	1	--	---	----
Subtotal	16,664	205	--	---	----
Vacant land parcels	6,884	115	[a]	---	----
Total	23,548	320	34	.144	10.625
Sonoma					
Residential	31,029	200	19	.061	9.500
Industrial	200	12	2	1.000	16.667
Commercial	1,825	34	8	.438	23.529
Rural	6,322	90	7	.111	7.778
Special	73	3	1	1.370	33.333
Subtotal	39,449	339	--	---	----
Vacant land parcels	23,540	77	[a]	---	----
Total	62,989	416	37	.059	8.894

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Stanislaus					
Residential	29,167	195	25	.086	12.820
Industrial	167	9	2	1.198	22.222
Commercial	985	21	10	1.015	47.619
Rural	6,665	90	8	.120	8.889
Special	15	3	--	---	----
Subtotal	36,999	318	--	---	----
Vacant land parcels	10,300	97	[a]	---	----
Total	47,299	415	45	.095	10.843
Sutter					
Residential	5,139	125	11	.214	8.800
Industrial	27	2	1	3.704	50.000
Commercial	382	11	5	1.309	45.454
Rural	1,658	20	11	.663	55.000
Special	----	--	--	---	----
Subtotal	7,206	158	--	---	----
Vacant land parcels	7,338	126	[a]	---	----
Total	14,544	284	28	.192	9.859
Tehama					
Residential	5,006	125	12	.240	9.600
Industrial	34	3	1	2.941	33.333
Commercial	490	12	2	.408	16.667
Rural	1,761	25	7	.398	28.000
Special	126	--	--	---	----
Subtotal	7,417	165	--	---	----
Vacant land parcels	6,883	117	[a]	---	----
Total	14,300	282	22	.154	7.801
Trinity					
Residential	1,335	75	8	.599	10.667
Industrial	23	2	1	4.348	50.000
Commercial	198	8	2	1.010	25.000
Rural	294	10	2	.680	20.000
Special	1,806	13	2	.111	15.385
Subtotal	3,656	108	--	---	----
Vacant land parcels	3,754	96	[a]	---	----
Total	7,410	204	15	.202	7.353
Tulare					
Residential	26,307	181	20	.076	11.049
Industrial	170	9	1	.588	11.111
Commercial	1,865	35	5	.268	14.285
Rural	7,047	100	8	.114	8.000
Special	215	2	1	.465	50.000
Subtotal	35,604	327	--	---	----
Vacant land parcels	22,760	67	[a]	---	----
Total	58,364	394	35	.060	8.883

NUMBER OF PARCELS OF LOCALLY ASSESSED REAL PROPERTY SAMPLED BY THE STATE BOARD OF EQUALIZATION IN 1951 AS A PERCENT OF TOTAL PARCELS OF LOCALLY ASSESSED PROPERTY AND AS A PERCENT OF AN "ADEQUATE" SAMPLE, BY TYPE OF PROPERTY AND BY COUNTY—Continued

County and Type of Property	*Estimated Total Number of Parcels* (1)	*"Adequate" Sample Suggested by State Board of Equalization* (2)	*Actual Sample Used by State Board of Equalization* (3)	*Actual Sample as a Percent of Total Parcels* (4)	*Actual Sample as a Percent of "Adequate" Sample* (5)
Tuolumne					
Residential	4,210	120	10	.238	8.333
Industrial	45	3	1	2.222	33.333
Commercial	501	12	3	.599	25.000
Rural	406	--	6	1.478	----
Special	1,006	13	2	.199	15.385
Subtotal	6,168	148	--	---	----
Vacant land parcels	4,630	108	[a]	---	----
Total	10,798	256	22	.204	8.594
Ventura					
Residential	17,874	175	35	.196	20.000
Industrial	88	7	2	2.273	28.571
Commercial	1,926	32	12	.623	37.500
Rural	2,002	30	6	.300	20.000
Special	56	3	--	---	----
Subtotal	21,946	247	--	---	----
Vacant land parcels	36,905	105	[a]	---	----
Total	58,851	352	55	.093	15.625
Yolo					
Residential	6,866	135	10	.146	7.407
Industrial	42	5	2	4.762	40.000
Commercial	443	13	3	.677	23.076
Rural	1,304	25	7	.537	28.000
Special	7	1	--	---	----
Subtotal	8,662	179	--	---	----
Vacant land parcels	4,495	144	[a]	---	----
Total	13,157	323	22	.167	6.811
Yuba					
Residential	4,040	120	11	.272	9.167
Industrial	47	4	2	4.255	50.000
Commercial	567	14	4	.706	28.571
Rural	735	15	9	1.224	60.000
Special	141	4	--	---	----
Subtotal	5,530	157	--	---	----
Vacant land parcels	3,810	103	[a]	---	----
Total	9,340	260	26	.278	10.000

NOTE: [a] The State Board of Equalization did not list separately the vacant land parcels sampled but included these in the other categories.

SOURCE: State Board of Equalization, Division of Assessment Standards.

APPENDIX E

Ratio Computation Summary for Each County as Used by the Division of Assessment Standards of the State Board of Equalization in its Survey of Common Property Assessments of 1951

RATIO COMPUTATION SUMMARY

Alameda County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
1	Industrial	$149,635	$283,700	----	$433,335	$35,900	$86,250	----	$122,150
10	Commercial	2,400,500	3,086,500	----	5,487,000	779,550	977,650	----	1,757,200
57	Residential	179,525	713,725	----	893,250	44,425	128,425	----	172,850
6	Agricultural	89,550	15,800	----	105,350	19,200	1,875	----	21,075

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside——Land	$2,710,660	$859,875	27.7	27	25	31.7	30
Improvements	3,991,925	1,192,325	17.9	18	18	29.9	22
Personal property	----	----	--	--	--	--	33
Total	$6,702,585	$2,052,200	19.7	19	19	30.6	
Outside——Mineral rights							
Land	$108,550	$22,450	23.7	20	24	20.7	24
Improvements	107,800	23,275	15.6	16	16	21.6	20
Personal property	----	----	--	--	--	--	33
Total	$216,350	$45,725	23.7	19	24	21.0	
Totals ——Mineral rights							
Land	$2,819,210	$882,325	27.3	28	23	31.3	
Improvements	4,099,725	1,215,600	17.8	19	18	29.6	
Total	$6,918,935	$2,097,925	20.1	19	19	30.3	35

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside ——Land	$186,791,500	27.05	30	.902
Improvements	300,788,150	43.56	22	1.980
Personal property	109,825,065	15.91	33	.482
Total inside	$597,404,715	86.52		3.364
Outside——Mineral rights				
Land	$29,746,385	4.31	24	.179
Improvements	49,004,150	7.10	20	.355
Personal property	14,310,325	2.07	33	.063
Total outside	$93,060,860		13.48	.597
Total county	**$690,465,575**	**100.00**		3.961
Totals——Mineral rights				
Land	$216,537,885	----	29.00	----
Improvements	349,792,300	----	21.70	----
Personal property	124,135,390	----	33.00	----
Total county	$690,465,575			25.25

RATIO COMPUTATION SUMMARY

Alpine County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				Assessed Value			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
2	Commercial	$3,150	$29,350	----	$32,500	$170	$15,200	----	$15,370
4	Residential	2,430	13,320	----	15,750	475	1,775	----	2,250
1	Rural	33,950	3,050	----	37,000	6,100	1,000	----	7,100

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Outside--Mineral rights							
Land	$39,530	$6,745	16.5	18.0	16.6	17.1	18
Improvements	45,720	17,975	25.8	19.7	25.8	39.3	30
Total	$85,250	$24,720	22.7	18.0	17.0	29.0	35

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Outside--Mineral rights				
Land	$374,568	61.36	18	3.410
Improvements	186,590	30.57	30	1.020
Personal property	49,270	8.07	35	.230
Total Outside	$610,428			
Total county	**$610,428**	**100.00**		4.660
Totals---Mineral rights				
Land	$374,568	----	18	----
Improvements	186,590	----	30	----
Personal property	49,270	----	35	----
Total county	$610,428			21.49

RATIO COMPUTATION SUMMARY

Amador County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				Assessed Value			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
2	Commercial	$12,800	$29,200	----	$42,000	$1,000	$5,550	----	$15,550
9	Residential	4,950	73,150	----	78,100	1,760	15,950	----	17,710
3	Rural	26,100	2,150	----	28,250	6,290	900	----	7,190
2	Timber	38,300	----	----	38,300	10,125	----	----	10,125
2	Industrial	33,200	86,800	----	89,800	10,500	25,010	----	35,510

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$17,750	$2,760	32.6	36.4	7.0	15.5	28
	Improvements	102,350	21,500	22.4	25.1	22.6	21.0	24
	Personal property	----	----	--	--	--	--	35
	Total	$120,100	$24,260	20.2	22.1	27.7	20.2	--
Outside	Mineral rights							
	Land	$97,600	$26,915	25.7	26.4	25.7	27.6	28
	Improvements	88,950	25,910	37.2	32.4	37.2	29.1	32
	Personal property	----	----	20.3	--	--	20.3	35
	Total	$186,550	$52,825	--	--	--	--	--
Totals	Mineral rights							
	Land	$115,350	$29,675	29.9	48.0	22.0	25.7	--
	Improvements	191,300	47,410	27.4	47.0	27.0	24.8	--
	Total	$306,650	$77,085	--	--	--	--	--

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$371,765	3.94	28	.141
	Improvements	1,564,620	16.59	24	.691
	Personal property	498,465	5.29	35	.151
	Total inside	$2,434,850	25.82		.983
Outside	Mineral rights				
	Land	$2,617,485	27.75	28	.991
	Improvements	2,027,550	21.50	32	.672
	Personal property	2,350,435	24.93	35	.712
	Total outside	$6,995,575	74.18		2.375
Total county		**$9,430,425**	**100.00**		3.358
Totals	Mineral rights				
	Land	$2,989,250	----	28.0	----
	Improvements	3,592,170	----	27.9	----
	Personal property	2,849,005	----	35.0	----
Total county		$9,430,425			29.77

Butte County

RATIO COMPUTATION SUMMARY

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
2	Industrial	$9,350	$30,200	----	$39,550	$545	$8,335	----	$8,880
6	Commercial	247,700	243,900	----	491,600	32,850	62,275	----	95,125
13	Residential	17,620	120,780	----	138,400	2,835	23,470	----	26,305
13	Rural	210,500	70,200	----	280,700	58,375	16,385	----	74,760

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$274,670	$36,230	17.1	17.6	17.1	13.1	18
	Improvements	394,880	94,080	20.6	19.5	19.0	22.1	22
	Personal property	----	----	--	--	--	--	30
	Total	$669,550	$130,310	18.1	18.4	18.0	18.5	--
Outside	Mineral rights	$287,300	$107,150	--	--	--	37.29	--
	Land	210,500	58,375	29.5	25.3	25.0	27.7	30
	Improvements	70,200	16,385	26.4	23.5	24.0	23.3	27
	Total	$280,700	$74.760	27.2	24.3	21.0	26.6	--
Totals	Mineral rights							
	Land	$485,170	$94,605	21.9	21.3	21.9	19.5	--
	Improvements	465,080	110,465	22.7	20.7	22.7	23.8	--
	Total	$950,250	$205,070	21.6	20.8	21.9	21.6	27

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$3,913,280	6.61	18	.367
	Improvements	10,300,515	17.41	22	.791
	Personal property	2,832,615	4.79	30	.160
	Total inside	$17,046,410	28.81		1.318
Outside	Mineral rights				
	Land	$18,556,840	31.37	30	1.046
	Improvements	16,277,650	27.52	27	1.019
	Personal property	2,277,185	12.30	30	.410
	Total outside	$42,111,675	71.19		2.475
Total county		**$59,158,085**	**100.00**		3.793
Totals	Mineral rights				
	Land	$22,470,120	----	26.88	----
	Improvements	26,578,165	----	24.81	----
	Personal property	10,109,800	----	30.00	----
Total county		$59,158,085			26.36

RATIO COMPUTATION SUMMARY

Calaveras County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$11,200	$136,300	$7,500	$155,000	$3,200	$39,140	$2,980	$45,320
12	Residential	13,230	139,120	----	152,350	3,085	36,120	----	39,205
15	Outside	93,230	15,620	----	108,850	27,225	4,810	----	32,035
1	Industrial	----	1,450	----	1,450	----	520	----	520

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$24,430	$6,285	30.9	28.0	31.0	25.7	26
	Improvements	275,420	75,260	28.9	27.5	25.0	27.3	28
	Personal property	7,500	2,980	39.4	--	--	39.7	35
	Total	$307,350	$84,525	27.6	26.5	2.5	27.6	--
Outside	Land	$93,230	$27,225	31.1	31.2	31.4	29.2	30
	Improvements	15,620	4,810	34.7	35.9	34.7	30.8	31
	Personal property	----	----	--	--	--	--	35
	Total	$108,850	$32,035	31.9	32.5	32.3	29.4	--
Totals	Land	$117,660	$33,510	31.0	28.3	31.2	28.5	--
	Improvements	292,490	80,590	30.0	27.7	30.1	27.5	--
	Personal property	7,500	2,980	39.7	--	--	39.7	--
	Total	$417,650	$117,080	28.8	28.3	29.0	28.0	31

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$167,210	1.11	26	.043
	Improvements	575,015	3.81	28	.136
	Personal property	148,290	.98	35	.028
	Total inside	$890,515	5.90		.207
Outside	Mineral rights				
	Land	$6,310,670	41.83	30	1.394
	Improvements	4,835,825	32.06	31	1.034
	Personal property	3,049,490	20.21	35	.577
	Total outside	$14,195,965	94.10		3.005
Total county		**$15,086,480**	**100.00**		3.212
Totals	Mineral rights				
	Land	$6,477,880	----	29.90	----
	Improvements	5,410,840	----	30.68	----
	Personal property	3,197,760	----	35	----
Total county		$15,086,480			31.13

RATIO COMPUTATION SUMMARY

Colusa County

Dates Made 1950-1951

1. *Appraisal data*

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
8	Residential	$15,070	$95,230	----	$110,300	$3,800	$23,160	----	$26,960
3	Commercial	16,550	37,200	----	53,750	7,375	12,760	----	20,135
1	Industrial	470	104,530	----	105,000	85	24,800	----	24,885
6	Farm	184,000	30,000	----	214,000	46,155	4,150	----	50,305

2. *Appraisal ratio data*

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$31,790	$11,225	34.9	33.0	34.9	35.3	31
Improvements	236,960	60,720	25.7	23.3	23.0	25.6	27
Personal property	----	----	--	--	--	--	33
Total	$268,750	$71,945	27.2	23.7	24.0	26.8	--
Outside—Mineral rights							
Land	$184,300	$46,190	22.1	21.3	23.0	25.1	25
Improvements	30,000	4,150	18.9	19.0	19.0	13.8	17
Personal property	----	----	--	--	--	--	33
Total	$214,300	$50,340	21.8	21.9	22.0	23.5	--
Totals—Mineral rights							
Land	$216,090	$57,415	29.9	27.3	24.0	26.6	--
Improvements	266,960	64,870	23.9	23.3	23.0	24.3	--
Total	$483,050	$122,285	25.1	23.6	24.0	25.3	25

3. *County ratio computations*

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$819,975	2.96	31.0	.095
Improvements	2,211,140	7.97	27.0	.295
Personal property	1,174,545	4.24	33.0	.128
Total inside	$4,205,660	15.17		.518
Outside—Mineral rights				
Land	$13,487,277	48.65	25.0	1.946
Improvements	3,747,275	13.51	17.0	.795
Personal property	6,284,880	22.67	33.0	.687
Total outside	$23,519,432	84.83		3.428
Total county	$27,725,092	100.00		3.946
Totals—Mineral rights				
Land	$14,307,252	----	25.28	----
Improvements	5,958,415	----	19.71	----
Personal property	7,459,425	----	33.00	----
Total county	$27,725,092			25.34

RATIO COMPUTATION SUMMARY

Contra Costa County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improve-ments*	*Personal Property*	*Total*	*Land*	*Improve-ments*	*Personal Property*	*Total*
9	Commercial	$323,050	$284,450	----	$607,500	$55,960	$84,740	----	$140,700
33	Residential	51,470	310,180	----	361,650	10,170	69,320	----	79,490
6	Outside	200,500	19,750	----	220,250	44,235	8,070	----	52,305
2	Industrial	67,400	795,800	----	863,200	10,350	92,500	----	102,850

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$441,920	$76,480	20.2	20.0	20.0	17.3	20
	Improvements	1,390,430	246,560	23.2	22.1	21.0	17.7	22
	Personal property	----	----	--	--	--	--	30
	Total	$1,832,350	$232,040	22.4	21.6	20.0	17.6	--
Outside	Mineral rights	$1,305,350	$466,660	--	--	--	35.75	--
	Land	200,500	44,235	24.4	21.3	24.5	21.1	25
	Improvements	19,750	8,070	21.5	19.1	21.5	22.4	23
	Personal property	----	----	--	--	--	--	30
	Total	$220,250	$52,305	23.3	20.7	18.0	21.2	--
Totals	Land	$642,420	$120,715	20.7	20.0	20.0	18.8	--
	Improvements	1,410,180	254,630	23.0	22.1	21.0	18.1	--
	Total	$2,052,600	$375,345	22.5	21.6	20.0	18.3	24

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$22,541,520	7.75	20	.387
	Improvements	89,451,485	30.76	22	1.398
	Personal property	22,721,325	7.81	30	.260
	Total inside	$134,714,330	46.32		2.045
Outside	Mineral rights				
	Land	$28,587,100	9.83	25	.393
	Improvements	102,818,150	35.35	23	1.537
	Personal property	24,734,330	8.50	30	.283
	Total outside	$156,139,580	53.68		2.213
Total county		$290,853,910	100.00		4.258
Totals	Mineral rights				
	Land	$51,128,620	----	22.52	----
	Improvements	192,269,635	----	22.52	----
	Personal property	47,455,655	----	30.00	----
Total county		$290,853,910			23.48

RATIO COMPUTATION SUMMARY **Del Norte County**

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
1	Commercial	$17,400	$47,600	----	$65,000	$4,800	$13,900	----	$18,700
7	Residential	6,050	42,750	----	48,800	1,750	6,900	----	8,650
1	Industrial	2,000	18,000	$8,500	28,500	200	1,650	$1,750	3,600
	Timber	1,039,900	----	----	1,039,900	223,390	----	----	223,390
	Agricultural	54,000	20,500	----	74,500	18,320	3,400	----	21,720

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$23,450	$6,550	37.6	42.9	42.9	27.9	29
	Improvements	90,350	20,800	19.1	17.2	19.0	23.0	20
	Personal property	----	----	--	--	--	--	30
	Total	$113,800	$27,350	28.9	--	--	--	--
Outside	Land	$1,095,900	$241,910	24.9	21.2	20.1	22.1	27
	Improvements	38,500	5,050	15.1	15.6	15.0	13.1	16
	Personal property	8,500	1,750	20.6	20.6	--	20.6	30
	Total	$1,142,900	$248,710	24.1	20.1	20.1	21.8	--
Totals	Land	$1,119,350	$248,460	32.0	31.0	20.5	24.7	--
	Improvements	128,850	25,850	17.9	17.2	18.8	20.0	--
	Personal property	8,500	1,750	20.6	20.6	20.6	--	--
	Total	$1,256,700	$276,060	21.9	20.0	20.0	24.2	25

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$453,620	3.35	29	.116
	Improvements	714,890	5.28	20	.264
	Personal property	486,260	3.59	30	.120
	Total inside	$1,654,770	12.23		.500
Outside	Mineral rights				
	Land	$8,930,922	65.98	27	2.444
	Improvements	1,485,080	10.98	16	.686
	Personal property	1,464,215	10.82	30	.360
	Total outside	$11,880,217	87.78		3.490
Total county		**$13,534,987**	**100.00**		3.990
Totals	Mineral rights				
	Land	$9,384,542	----	27.10	----
	Improvements	2,199,970	----	17.11	----
	Personal property	1,950,475	----	30.00	----
Total county		$13,534,987			25.07

RATIO COMPUTATION SUMMARY

El Dorado County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$47,500	$124,500	----	$172,000	$14,190	$38,650	----	$52,840
7	Residential	4,350	70,650	----	75,000	1,840	18,020	----	19,860
5	Res. (outside)	5,050	27,700	----	32,750	1,530	7,700	----	9,230
6	Farm	51,340	67,660	----	119,000	11,960	20,090	----	32,050

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$35,250	$15,540	45.4	50.0	50.0	44.1	38
Improvements	170,250	48,670	27.9	30.1	31.5	28.6	28
Personal property	----	----	--	--	--	--	35
Total	$205,500	$64,210	29.4	32.0	34.0	31.2	--
Outside — Land	$72,900	$13,980	26.8	26.8	27.0	19.1	27
Improvements	120,260	35,790	35.6	32.3	32.0	29.8	30
Personal property	----	----	--	--	--	--	35
Total	$193,250.	$59,770	--	--	--	--	--
Totals — Land	$108,240	$29,520	--	--	--	--	--
Improvements	290,510	84,460	--	--	--	--	--
Total	$398,750	$113,980	--	--	--	--	--

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$1,036,910	3.61	38	.095
Improvements	2,983,690	10.39	28	.371
Personal property	624,820	2.18	35	.062
Total Inside	$4,645,420	16.18		.528
Outside — Mineral rights				
Land	$10,314,000	35.92	27	1.330
Improvements	11,395,270	39.69	30	1.323
Personal property	2,357,820	8.21	35	.235
Total outside	$24,067,090	83.82		
Total county	$28,712,510	100.00		3.416
Totals — Mineral rights				
Land	$11,350,910	27.73	----	----
Improvements	14,378,960	29.56	----	----
Personal property	2,982,640	35.00	----	----
Total county	$28,712,510			29.27

Fresno County

RATIO COMPUTATION SUMMARY

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
9	Commercial	$1,190,500	$1,141,000	----	$2,331,500	$421,000	$277,720	----	$698,720
2	Industrial	12,750	274,500	----	287,250	3,470	57,270	----	60,740
47	Residential	78,190	403,260	----	481,450	20,190	71,770	----	91,960
10	Agricultural	206,750	34,250	----	241,000	65,680	11,025	----	76,705
	Mineral rights	415,597,500	----	----	415,597,500	147,422,150	----	----	147,422,150

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$1,252,640	$439,950	30.9	32.0	30.9	35.1	30
	Improvements	1,528,510	341,970	15.9	15.0	15.9	22.4	21
	Personal property	----	----	--	--	--	--	40
	Total	$2,781,150	$781,920	19.3	19.0	19.3	28.1	--
Outside	Mineral rights	$415,597,500	$ 147,422,150	--	--	--	35.5	36
	Land	235,550	70,390	29.7	30.0	29.7	29.9	31
	Improvements	324,500	75,815	23.4	25.0	34.1	23.4	26
	Personal property	----	----	--	--	--	--	40
							26.1	--
	Total	$416,157,550	$ 147,568,355	26.1	29.0	30.6	35.5	--
Totals	Mineral rights	$415,597,500	$ 147,422,150	--	--	--	35.5	--
	Land	1,488,190	510,340	30.6	31.0	30.6	34.3	--
	Improvements	1,853,010	417,785	18.9	17.0	18.9	22.5	--
	Personal property	----	----	--	--	--	25.0	--
							27.8	--
	Total	$418,938,700	$ 148,350,275	21.5	20.0	21.5	35.4	--

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$36,733,995	7.73	30	.258
	Improvements	60,414,095	12.72	21	.606
	Personal property	28,180,680	5.93	40	.148
	Total inside	$125,328,770	26.38		1.012
Outside	Mineral rights	$151,941,830	31.98	36	.888
	Land	76,995,240	16.21	31	.523
	Improvements	70,019,760	14.74	26	.567
	Personal property	50,764,315	10.69	40	.267
	Total outside	$349,721,145	73.62		2.245
Total county		$475,049,915	100.00		3.257
Totals	Mineral rights	$151,941,830	----	33.51	----
	Land	113,729,235			
	Improvements	130,433,855	----	23.42	----
	Personal property	78,944,995	----	40.00	----
Total county		$475,049,915			30.70

Glenn County

RATIO COMPUTATION SUMMARY

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$32,700	$102,550	----	$135,250	$7,120	$30,780	----	$37,900
7	Residential	4,260	48,490	----	52,750	910	12,330	----	13,240
10	Outside	180,150	30,850	----	211,000	46,660	12,200	----	58,860
1	Industrial	6,000	22,000	----	28,000	1,600	6,040	----	7,640

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$42,960	$9,630	22.8	18.7	22.9	22.4	23
Improvements	173,040	49,150	25.5	26.7	25.5	28.4	28
Personal property	----	----	--	--	--	--	40
Total	$216,000	$58,780	24.2	24.7	24.3	25.9	--
Outside—Land	$180,150	$46,660	25.7	27.0	25.7	19.8	26
Improvements	30,850	12,200	41.4	34.2	41.6	39.5	40
Personal property	----	----	--	--	--	--	40
Total	$211,000	$59,470	29.2	28.4	29.2	27.9	--
Totals—Land	$223,110	$56,290	24.2	22.5	24.2	25.2	--
Improvements	203,890	61,350	30.8	28.6	30.9	30.1	--
Total	$427,000	$117,640	26.6	27.0	26.6	27.7	31

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$782,155	2.34	23	.102
Improvements	3,828,095	11.45	28	.409
Personal property	1,178,620	3.52	40	.088
Total inside	$5,788,870	17.31		.599
Outside—Mineral rights				
Land	$14,700,575	43.96	26	1.691
Improvements	6,250,015	18.69	40	.467
Personal property	6,702,485	20.04	40	.500
Total outside	$27,653,075	82.69		2.658
Total county	**$33,441,945**	**100.00**		32.57
Totals—Mineral rights				
Land	$15,482,730	----	25.83	----
Improvements	10,078,110	----	34.40	----
Personal property	7,881,105	----	40.00	----
Total county	$33,441,945			30.70

RATIO COMPUTATION SUMMARY

Humboldt County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value* *Land*	*Appraised Value* *Improvements*	*Appraised Value* *Personal Property*	*Appraised Value* *Total*	*Assessed Value* *Land*	*Assessed Value* *Improvements*	*Assessed Value* *Personal Property*	*Assessed Value* *Total*
6	Commercial	$257,700	$451,300	----	$709,000	$54,870	$99,590	----	$154,460
14	Residential	18,550	93,200	----	111,750	2,250	17,120	----	19,370
2	Timber	364,000	----	----	364,000	74,870	----	----	74,870
5	Rural	129,500	28,500	----	158,000	41,330	2,310	----	43,640
3	Industrial	36,900	403,500	----	440,400	3,730	74,560	----	78,290

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$276,250	$57,120	14.2	15.5	16.0	20.7	16
	Improvements	544,500	116,710	20.1	20.6	21.0	21.4	21
	Personal property	----	----	--	--	--	--	35
	Total	$820,750	$173,830	17.1	15.8	20.0	21.2	--
Outside	Mineral rights							
	Land	$530,400	$119,930	24.3	27.8	33.0	22.6	25
	Improvements	432,000	76,870	13.9	11.4	13.5	17.8	16
	Personal property	----	----	--	--	--	--	35
	Total	$962,400	$196,800	23.6	25.7	12.0	20.4	--
Totals	Land	$806,650	$177,050	17.5	16.2	16.0	21.9	--
	Improvements	976,500	193,580	18.3	18.7	18.4	19.8	35
	Total	$1,783,150	$370,630	19.2	19.3	20.0	20.8	23

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$4,506,270	6.80	16	.425
	Improvements	12,671,880	19.12	21	.910
	Personal property	5,189,100	7.83	35	.224
	Total inside	$22,367,250	33.75		1.559
Outside	Mineral rights				
	Land	$24,664,645	37.21	25	1.488
	Improvements	10,005,675	15.10	16	.944
	Personal property	9,242,345	13.94	35	.398
	Total outside	$43,912,665	66.25		2.830
Total county		$66,279,915	100.00		4.389
Totals	Mineral rights				
	Land	$29,170,915	----	23.00	----
	Improvements	22,677,555	----	18.46	----
	Personal property	14,431,445	----	35.00	----
Total county		$66,279,915			22.78

RATIO COMPUTATION SUMMARY

Imperial County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
5	Commercial	$273,000	$239,000	----	$512,000	$40,430	$51,660	----	$92,090
18	Residential	27,920	174,480	----	202,400	6,675	50,745	----	57,420
13	Agricultural	184,600	7,300	----	191,900	46,330	1,550	----	47,880
1	Industrial	48,000	6,113,350	$16,650	6,178,000	15,250	900,000	$2,450	917,700

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$300,920	$47,105	21.6	16.0	21.6	15.7	19
Improvements	413,480	102,405	24.6	24.0	24.6	24.8	25
Personal property	----	----	--	--	--	--	25
Total	$714,400	$149,510	23.7	22.0	23.7	20.9	--
Outside — Mineral rights							
Land	$232,600	$61,580	31.1	29.0	31.1	26.5	27
Improvements	6,120,650	901,550	11.4	11.7	11.4	14.7	20
Personal property	16,650	2,450	14.7	--	--	14.7	25
Total	$6,369,900	$965,580	29.5	26.0	29.5	15.2	--
Totals — Mineral rights							
Land	$533,520	$108,685	25.2	24.0	25.2	20.4	--
Improvements	6,534,130	1,003,955	22.6	24.0	22.6	15.4	--
Personal property	16,650	2,450	14.7	--	--	--	--
Total	$7,084,300	$1,115,090	25.9	25.0	25.9	15.7	25

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$3,289,050	5.67	.19	.299
Improvements	12,766,690	21.99	.25	.880
Personal property	6,025,602	10.38	.25	.415
Total inside	$22,081,342	38.03		1.594
Outside — Mineral rights				
Land	$21,881,625	37.69	.27	1.397
Improvements	6,021,560	10.37	.20	.518
Personal property	8,071,007	13.90	.25	.566
Total outside	$35,974,192	61.97		2.481
Total county	**$58,055,534**	**100.00**	.25	4.075
Totals — Mineral rights				
Land	$25,170,675	----	25.60	----
Improvements	18,788,250	----	23.13	----
Personal property	14,096,609	----	25.00	----
Total county	$58,055,534	100.00		24.61

RATIO COMPUTATION SUMMARY

Inyo County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
2	Commercial	$40,500	$60,500	----	$101,000	$24,920	$24,920	----	$32,170
12	Residential	25,750	97,750	----	123,500	3,710	25,950	----	29,660
1	Industrial	79,800	7,750	$25,550	113,100	19,950	2,970	$6,650	29,570
4	Agricultural	20,200	12,150	----	32,350	5,550	1,310	----	6,860

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$58,250	$9,780	15.0	14.0	15.0	16.8	17
Improvements	128,500	41,840	26.4	26.0	26.4	32.6	27
Personal property	----	----	--	--	--	25.0	30
Total	$186,750	$51,620	23.7	24.0	23.7	27.6	--
Outside—Mineral rights							
Land	$108,000	$26,680	25.4	16.0	25.4	24.7	25
Improvements	49,650	13,310	28.6	29.0	28.6	26.8	29
Personal property	25,550	6,650	--	--	--	26.0	30
Total	$183,200	$46,640	27.2	26.0	27.2	25.5	--
Totals—Mineral rights							
Land	$166,250	$36,460	19.9	15.0	19.9	21.9	--
Improvements	178,150	55,150	27.3	29.0	27.3	31.0	--
Personal property	25,550	6,650	--	--	--	26.0	--
Total	$369,950	$98,260	25.4	26.0	25.4	26.6	26

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$695,170	3.59	.17	.2112
Improvements	1,892,810	9.78	.27	.3622
Personal property	587,814	3.04	.30	.1013
Total inside	$3,175,794	16.41		.6747
Outside—Mineral rights				
Land	$9,418,670	48.67	.25	1.9468
Improvements	4,885,232	25.25	.29	.8706
Personal property	1,870,945	9.66	.30	.3220
Total outside	$16,174,847	83.59		3.1394
Total county	**$19,350,641**	**100.00**		3.8141
Totals—Mineral rights				
Land	$10,113,840	----	24.21	----
Improvements	6,778,042	----	28.41	----
Personal property	2,458,759	----	30.00	----
Total county	$19,350,641			26.21

RATIO COMPUTATION SUMMARY

Kern County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
11	Commercial	$644,500	$372,000	----	$1,016,500	$204,080	$62,500	----	$266,580
44	Residential	104,025	387,900	----	491,925	22,945	66,910	----	89,855
2	Industrial	9,000	4,028,500	----	4,037,500	1,040	803,490	----	804,530
12	Agricultural	242,350	22,250	----	264,600	33,870	8,410	----	42,280
	Mineral rights	664,565,000	----	----	664,565,000	229,263,605	----	----	229,262,605

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$743,075	$226,065	24.2	23.0	20.0	30.4	25
	Improvements	729,800	124,510	16.5	16.0	15.0	17.1	17
	Personal property	----	----	--	--	--	--	30
	Total	$1,472,875	$350,575	19.3	18.0	18.0	23.8	--
Outside	Mineral rights	$664,565,000	$229,262,605	--	--	--	34.5	35
	Land	256,800	35,870	19.6	17.0	19.6	14.0	17
	Improvements	4,080,850	816,800	33.2	17.0	33.2	20.0	20
	Personal property	----	----	--	--	--	--	30
	Total	$668,902,650	$230,115,275	19.9	17.0	19.9	19.7 34.4	--
Totals	Mineral rights	$664,565,000	$229,262,605	--	--	--	34.5	--
	Land	999,875	261,935	23.1	20.0	20.0	26.2	--
	Improvements	4,810,650	941,310	20.2	16.0	15.0	19.6	--
	Personal property	----	----	--	--	--	25.0	--
	Total	$670,375,525	$230,465,850	19.5	18.0	18.0	20.7 34.4	27

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
		$31,050 (M. R.)	1.00	35	.0003
Inside	Land	16,943,670	3.63	25	.1452
	Improvements	29,439,995	6.31	17	.3711
	Personal property	12,637,770	2.71	30	.0903
	Total inside	$59,052,485	12.66		.6069
Outside	Mineral rights	$247,314,950	53.02	35	1.5130
	Land	51,698,320	11.08	17	.6518
	Improvements	66,798,615	14.32	20	.7160
	Personal property	41,617,610	8.92	30	.2973
	Total outside	$407,429,495	87.34		3.1801
Total county		**$466,481,980**	**100.00**		3.7870
Totals	Mineral rights	$247,346,000	----	29.30	----
	Land	68,641,990			
	Improvements	96,238,610	----	18.98	----
	Personal property	54,255,380	----	30.00	----
Total county		$466,481,980			26.41

RATIO COMPUTATION SUMMARY **Kings County**

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$75,000	$71,500	----	$146,500	$19,330	$23,545	----	$42,875
1	Industrial	8,500	596,700	$6,800	612,000	1,800	203,670	$2,315	207,785
12	Residential	9,300	77,250	----	86,550	1,935	20,980	----	22,915
6	Agricultural	163,950	16,000	----	179,950	49,880	3,880	----	53,760
	Mineral rights	129,163,500	----	----	129,163,500	41,151,505	----	----	41,151,505

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$92,800	$23,065	22.1	17.0	22.1	24.9	25
	Improvements	745,450	248,195	28.4	30.0	28.4	33.3	29
	Personal property	6,800	2,315	--	--	--	34.0	35
	Total	$845,050	$273,575	27.6	26.0	27.6	32.4	--
Outside	Mineral rights	$129,163,500	$41,151,505	--	--	--	31.9	32
	Land	163,950	49,880	35.6	26.0	35.6	30.4	30
	Improvements	16,000	3,880	23.4	22.0	23.4	24.2	26
	Personal property	----	----	--	--	--	--	35
	Total	$129,343,450	$41,205,265	36.1	26.0	36.1	29.9 31.9	-- --
Totals	Mineral rights	$129,163,500	$41,151,505	--	--	--	31.9	--
	Land	256,750	72,945	25.8	21.0	25.8	28.4	--
	Improvements	761,450	252,075	27.6	27.0	27.6	33.1	--
	Personal property	6,800	2,315	--	--	--	30.0	--
	Total	$130,188,500	$41,478,840	29.9	26.0	29.9	31.9	31

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$2,332,990	2.27	25	.0908
	Improvements	9,880,525	9.62	29	.3317
	Personal property	3,273,065	3.19	35	.0911
	Total inside	$15,486,580	15.08		.5136
Outside	Mineral rights	$41,738,900	40.64	32	1.2700
	Land	20,078,845	19.55	30	.6517
	Improvements	13,810,660	13.45	26	.5173
	Personal property	11,573,305	11.27	35	.3220
	Total outside	$87,201,710	84.92		2.7610
Total county		**$102,688,290**	**100.00**		3.2746
Totals	Mineral rights	$41,738,900	----	31.04	----
	Land	22,411,835	----	----	----
	Improvements	23,691,185	----	27.2	----
	Personal property	14,846,370	----	35	----
Total county		$102,688,290			30.54

RATIO COMPUTATION SUMMARY

Lake County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$14,500	$84,500	----	$99,000	$3,430	$19,310	----	$22,740
2	Industrial	----	66,000	----	66,000	----	22,030	----	22,030
8	Residential	25,700	86,700	----	112,400	6,090	22,830	----	28,920
12	Agricultural	74,750	106,650	----	181,400	17,720	34,100	----	51,820

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$40,200	$9,520	24.8	24.8	27.5	23.7	25
Improvements	171,200	42,140	24.5	23.9	24.5	24.6	25
Personal property	----	----	--	--	--	--	35
Total	$211,400	$51,660	28.0	24.2	24.8	24.4	--
Outside — Mineral rights							
Land	$74,750	$17,720	23.1	24.0	25.0	23.7	24
Improvements	106,650	34,100	30.8	29.1	30.7	32.0	31
Personal property	----	----	--	--	--	--	35
Total	$181,400	$51,820	28.9	28.9	28.9	28.6	--
Totals — Land	$114,950	$27,240	25.5	24.4	25.2	23.7	24
Improvements	277,850	76,240	27.8	27.1	28.2	27.4	30
Personal property	----	----	--	--	--	--	35
Total	$392,800	$103,480	27.1	25.3	27.5	26.3	28

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$460,660	2.43	25	.0972
Improvements	1,194,260	6.31	25	.2524
Personal property	237,015	1.25	35	.0357
Total inside	$1,891,935	9.99		.3853
Outside — Mineral rights				
Land	$6,017,045	31.79	24	1.3246
Improvements	9,136,710	48.27	31	1.5571
Personal property	1,883,940	9.95	35	.2843
Total outside	$17,037,695	90.01		3.1660
Total county	**$18,929,630**	**100.00**		3.5573
Totals — Mineral rights				
Land	$6,477,705	----	24.07	----
Improvements	10,330,970	----	29.78	----
Personal property	2,120,955	----	35.00	----
Total county	$18,929,630	100.00		28.16

RATIO COMPUTATION SUMMARY

Lassen County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				Assessed Value			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$30,000	$108,000	----	$138,000	$5,710	$18,880	----	$24,590
5	Residential	3,150	57,850	----	61,000	1,160	4,940	----	6,100
3	Res. (outside)	1,350	10,900	----	12,250	430	780	----	1,210
4	Rural	26,550	3,150	----	29,700	6,020	1,230	----	7,250

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$33,150	$6,870	37.2	37.7	37.3	20.7	21
	Improvements	165,850	23,820	16.1	12.2	16.4	14.4	15
	Personal property	----	----	--	--	--	--	30
	Total	$199,000	$30,690	15.4	13.7	15.4	15.4	--
Outside	Mineral rights							
	Land	$27,900	$6,450	11.7	33.0	11.7	23.1	23
	Improvements	14,050	2,010	30.2	16.6	30.3	14.3	15
	Personal property	----	----	--	--	--	--	30
	Total	$41,950	$8,460	17.7	11.7	11.9	20.2	--
Totals	Land	$61,050	$13,320	25.3	33.0	25.3	21.8	--
	Improvements	179,900	25,830	22.2	12.2	22.4	14.4	--
	Personal property							
	Total	$240,950	$39,150	16.4	12.4	16.5	16.2	22

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$769,790	4.76	21	.2267
	Improvements	1,479,290	9.14	15	.6093
	Personal property	685,975	4.24	30	.1413
	Total inside	$2,935,055	18.14		.9773
Outside	Mineral rights				
	Land	$5,726,635	35.38	23	1.5383
	Improvements	2,260,715	13.97	15	.9313
	Personal property	5,261,715	32.51	30	1.0837
	Total outside	$13,249,065	81.86		3.5533
Total county		**$16,184,120**	**100.00**		4.5306
Totals	Mineral rights				
	Land	$6,496,425	----	22.74	----
	Improvements	3,740,005	----	15.00	----
	Personal property	5,947,690	----	30	----
Total county		$16,184,120			22.07

RATIO COMPUTATION SUMMARY

Los Angeles County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
34	Commercial	$5,097,000	$5,061,000	----	$10,158,000	$1,801,320	$1,422,730	----	$3,224,050
294	Residential	943,135	2,960,965	----	3,904,100	281,800	533,310	----	815,110
4	Industrial	554,500	2,378,000	4,135,000	7,067,500	165,280	601,440	1,008,100	1,774,820
7	Agricultural	93,650	50,100	----	143,750	23,760	6,770	----	30,530
	Mineral rights	439,149,500	----	----	439,149,500	146,835,550	----	----	146,835,550

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$6,411,385	$2,200,860	31.3	30.3	31.3	34.3	32
	Improvements	9,286,215	2,252,980	17.2	17.0	17 17.2	24.3	25
	Personal property	2,513,500	594,100	23.9	23.9	23.9	23.6	45
	Total	$18,211,100	$5,047,940	20.8	20.0	21.0	27.7	--
Outside	Mineral rights	$439,149,500	$146,835,550	--	--	--	33.4	34
	Land	276,900	71,300	25.9	24.5	25.9	25.7	30
	Improvements	1,163,850	311,270	19.8	21.0	19.8	26.7	25
	Personal property	1,621,500	414,000	26.5	26.5	26.5	25.5	45
	Total	$442,211,750	$147,632,120	21.6	22.5	21.6	26.0 33.4	--
Totals	Mineral rights	$439,149,500	$146,835,550	--	--	--	33.4	34
	Land	6,688,285	2,272,160	31.2	29.0	31.2	34.0	--
	Improvements	10,450,065	2,564,250	17.3	17.0	17.3	24.5	--
	Personal property	4,135,000	1,008,100	25.2	24.2	25.2	24.4	--
	Total	$460,422,850	$152,680,060	20.9	21.0	21.0	33.2	30

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$1,475,170,180	26.17	32	.8178
	Improvements	2,118,730,970	37.59	25	1.5036
	Personal property	964,251,555	17.11	45	.3802
	Total inside	$4,558,153,205	80.87		2.7016
Outside	Mineral rights	$153,112,440	2.72	34	.0800
	Land	216,600,100	3.84	30	.1280
	Improvements	369,712,540 501,976,920	8.91	25	.3564
	Personal property	206,551,510	3.66	45	.0813
	Total outside	$1,078,240,970	19.13		.6457
Total county		**$5,636,394,175**	**100.00**		3.3473
Totals	Mineral rights	$153,112,440		31.91	
	Land	1,691,770,780			
	Improvements	2,620,707,890		25.00	
	Personal property	1,170,803,065		45.00	
Total county		$5,636,394,175			**29.88**

RATIO COMPUTATION SUMMARY

Madera County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
5	Commercial	$113,000	$123,500	----	$236,500	$26,750	$28,820	----	$55,570
12	Residential	13,900	72,200	----	86,100	3,190	14,210	----	17,400
1	Industrial	12,000	83,350	$8,650	104,000	2,790	13,690	$1,420	17,900
6	Agricultural	133,600	15,250	----	148,850	34,260	4,180	----	38,440
	Mineral rights	1,263,000	----	----	1,263,000	423,160	----	----	423,160

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$126,900	$29,940	22.0	22.0	22.0	23.6	24
	Improvements	195,700	43,030	20.7	20.0	20.7	22.0	21
	Personal property	----	----	--	--	--	--	35
	Total	$322,600	$72,970	21.2	21.0	21.2	22.6	--
Outside	Mineral rights	$1,263,000	$423,160	--	--	--	33.5	34
	Land	145,600	37,050	24.7	23.0	24.7	25.4	26
	Improvements	98,600	17,870	22.3	22.0	22.3	18.1	27
	Personal property	8,650	1,420	--	--	--	16.4	35
	Total	$1,515,850	$479,500	24.5	22.0	24.5	22.3 31.6	--
Totals	Mineral rights	$1,263,000	$423,160	--	--	--	33.5	--
	Land	272,500	66,990	22.8	22.0	22.8	24.6	--
	Improvements	294,300	60,900	20.9	20.0	20.9	20.7	--
	Personal property	8,650	1,420	--	--	--	25.0	--
	Total	$1,838,450	$552,470	22.1	21.0	22.1	30.0	27

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$2,289,380	5.23	24	.2179
	Improvements	5,308,291	12.13	21	.5776
	Personal property	1,483,751	3.39	35	.0969
	Total inside	$9,081,422	20.75		.8924
Outside	Mineral rights	$455,660	1.04	34	.0300
	Land	17,298,150	39.53	26	1.5204
	Improvements	7,611,067	17.39	27	.6441
	Personal property	9,315,763	21.29	35	.6083
	Total outside	$34,680,640	79.25		2.8028
Total county		**$43,762,062**	**100.00**		3.6952
Totals	Mineral rights	**$455,660**		**25.89**	
	Land	**19,587,530**			
	Improvements	**12,919,358**		**24.16**	
	Personal property	**10,799,514**		**35.00**	
Total county		$43,762,062			27.06

RATIO COMPUTATION SUMMARY

Marin County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
5	Commercial	$128,800	$93,200	----	$222,000	$20,115	$17,655	----	$37,770
18	Residential	73,800	361,300	----	435,100	10,775	82,750	----	93,525
1	Industrial	12,200	32,700	----	44,900	3,750	7,000	----	10,750
7	Farm	277,350	47,500	----	324,850	71,790	12,445	----	84,235

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$118,500	$25,320	26.8	23.2	23.0	21.4	23
	Improvements	257,500	53,875	22.5	33.6	25.0	20.9	23
	Personal property	----	----	--	--	--	--	30
	Total	$376,000	$79,195	22.8	23.0	23.0	21.1	--
Outside	Mineral rights							
	Land	$373,650	$81,110	22.6	26.5	28.0	21.7	25
	Improvements	277,200	65,975	27.7	28.5	27.7	23.8	27
	Personal property	----	----	--	--	--	--	30
	Total	$650,850	$147,085	25.1	26.5	25.1	22.6	--
Totals	Mineral rights							
	Land	$492,150	$106,430	25.5	24.7	25.5	21.6	--
	Improvements	534,700	119,850	24.0	25.0	25.0	22.4	--
	Personal property	----	----	--	--	--	--	--
	Total	$1,026,850	$226,280	23.5	23.6	23.0	22.0	25

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$14,632,315	17.28	23	.7513
	Improvements	30,855,830	36.43	23	1.5839
	Personal property	3,776,452	4.66	30	.1487
	Total inside	$49,264,597	58.16		2.4839
Outside	Mineral rights				
	Land	$13,354,275	15.77	25	.6308
	Improvements	17,550,030	20.72	27	.7674
	Personal property	4,529,934	5.35	30	.1783
	Total outside	$35,434,239	41.84		1.5765
Total county		$84,698,836	100.00		4.0604
Totals	**Mineral rights**				
	Land	$27,986,590	----	23.91	----
	Improvements	48,405,860	----	24.31	----
	Personal property	8,306,386	----	30	----
Total county		$84,698,836			24.64

RATIO COMPUTATION SUMMARY

Mariposa County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
2	Commercial	$8,250	$36,250	----	$44,500	$1,080	$6,250	----	$7,330
6	Residential	4,850	30,000	----	34,850	1,540	5,320	----	6,860
4	Rural	23,750	12,500	----	36,250	5,900	2,410	----	8,310

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Outside -- Mineral rights							
Land	$36,850	$8,520	25.7	24.1	25.8	23.1	25
Improvements	78,750	13,980	18.1	18.0	16.0	17.8	18
Personal property	----	----	--	--	--	--	40
Total	$115,600	$22,500	20.1	19.6	19.0	19.5	--

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Outside -- Mineral rights				
Land	$2,860,080	39.38	25	1.5752
Improvements	2,207,305	30.39	18	1.6883
Personal property	2,195,730	30.23	40	.7558
Total outside	$7,263,115	100.00	27	4.0193
Total county	**$7,263,115**	**100.00**	27	4.0193
Totals --- Mineral rights				
Land	$2,860,080	39.20	25	----
Improvements	2,207,305	42.00	18	----
Personal property	2,195,730	18.80	40	----
Total county	$7,263,115	100.00		24.88

RATIO COMPUTATION SUMMARY

Mendocino County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$20,500	$60,500	----	$81,000	$4,630	$12,400	----	$17,030
7	Residential	7,050	64,050	----	71,100	1,380	16,000	----	17,380
1	Industrial	5,000	90,000	----	95,000	880	20,250	----	21,130
7	Rural	197,100	34,150	----	231,250	53,300	11,010	----	64,310

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$32,550	$6,890	21.5	18.9	21.8	21.2	22
Improvements	214,550	48,650	23.3	22.7	23.1	22.7	23
Personal property	----	----	--	--	--	--	30
Total	$247,100	$55,540	22.9	22.4	23.2	22.5	--
Outside—Mineral rights							
Land	$197,100	$53,300	29.0	28.7	29	27.0	29
Improvements	34,150	11,010	38.3	36.3	38.3	32.2	38
Personal property	----	----	--	--	--	--	30
Total	$231,250	$64,310	28.9	27.5	27.4	27.8	--
Totals—Mineral rights							
Land	$229,650	$60,190	24.4	25.0	24.5	26.2	--
Improvements	248,700	59,660	28.3	24.1	28.1	24.0	--
Personal property							
Total	$478,350	$119,850	25.3	24.8	24.8	25.1	29

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$1,828,680	4.21	22	.1914
Improvements	7,378,760	16.98	23	.7383
Personal property	2,419,205	5.57	30	.1857
Total inside	$11,626,645	26.76		1.1154
Outside—Mineral rights				
Land	$17,884,380	41.15	29	1.4190
Improvements	9,240,800	21.26	38	.5595
Personal property	4,706,303	10.83	30	.3610
Total outside	$31,831,483	73.24		2.3395
Total county	$43,458,128	100.00		3.4549
Totals—Mineral rights				
Land	$19,713,060	----	28.17	----
Improvements	16,619,560	----	29.47	----
Personal property	7,125,508	----	30.00	----
Total county	$43,458,128			28.95

RATIO COMPUTATION SUMMARY

Merced County

Dates Made 1950-1951

1. *Appraisal data*

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
6	Commercial	$156,000	$172,500	----	$328,500	$21,150	$41,000	----	$62,150
1	Industrial	10,500	31,000	----	41,500	900	5,250	----	6,150
21	Residential	55,700	136,250	----	191,950	6,320	25,350	----	31,670
11	Agricultural	86,700	34,250	----	120,950	21,050	5,910	----	26,960

2. *Appraisal ratio data*

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$222,200	$28,370	14.3	13.0	14.3	12.8	13
Improvements	339,750	71,600	20.8	19.0	19.0	21.1	21
Personal property	----	----	--	--	--	--	30
Total	$561,950	$99,970	17.2	18.0	19.0	17.8	--
Outside — Mineral rights							
Land	$86,700	$21,050	26.3	25.0	26.3	24.3	26
Improvements	34,250	5,910	22.0	22.0	22.0	17.3	22
Personal property	----	----	--	--	--	--	30
Total	$120,950	$26,960	24.6	22.0	24.6	22.3	--
Total — Mineral rights							
Land	$308,900	$49,420	17.7	17.0	17.7	16.0	--
Improvements	374,000	77,510	21.1	19.0	19.0	20.7	--
Personal property	----	----	--	--	--	20.0	--
Total	$682,900	$126,930	19.3	18.0	19.0	18.6	24

3. *County ratio computations*

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$3,257,150	4.53	13	.3485
Improvements	11,865,910	16.50	21	.7851
Personal property	4,538,735	6.31	30	.2103
Total inside	$19,661,935	27.34		1.3443
Outside — Mineral rights	$59,630	----	--	----
Land	28,694,520	39.98	26	1.5377
Improvements	10,897,990	15.15	22	.6886
Personal property	12,595,525	17.52	30	.5840
Total outside	$52,247,665	72.66		2.8103
Total county	**$71,909,600**	**100.00**		**4.1546**
Totals — Mineral rights	$59,770			
Land	31,951,670	----	**23.60**	----
Improvements	22,763,900	----	**21.47**	----
Personal property	17,134,260	----	**30.00**	----
Total county	$71,909,600			**24.06**

Modoc County

RATIO COMPUTATION SUMMARY

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	Use Type	Appraised Value				Assessed Value			
		Land	Improvements	Personal Property	Total	Land	Improvements	Personal Property	Total
5	Commercial	$15,700	$88,300	----	$104,000	$1,570	$18,440	----	$20,010
12	Residential	11,550	141,000	----	152,550	1,550	25,010	----	26,560
12	Outside	228,550	32,000	----	260,550	26,760	3,805	----	30,565

2. Appraisal ratio data

Class		Total Appraised Value	Total Assessed Value	Ratio Average	Ratio Median	Ratio Mode	Total Value Ratio	Ratio
Inside	Land	$27,250	$3,120	17.4	16.5	9.0	11.4	17
	Improvements	229,300	43,450	18.5	18.1	18	18.9	19
	Personal property	----	----	--	--	--	--	35
	Total	$256,550	$46,570	18.1	18.1	19.0	18.2	--
Outside	Mineral rights							
	Land	$228,550	$26,760	17.0	11.3	17	11.7	17
	Improvements	32,000	3,805	11.9	13.4	18	11.9	12
	Personal property	----	----	--	--	--	--	35
	Total	$260,550	$30,565	16.6	11.3	16.6	11.7	--
Totals	Mineral rights							
	Land	$255,800	$29,880	17.3	13.4	9.0	11.7	--
	Improvements	261,300	47,255	16.8	18.0	17.0	18.1	--
	Personal property							
	Total	$517,100	$77,135	17.5	17.0	17.6	14.9	22

3. County ratio computations

Class		Assessed Value 1951	Percent of Total	Ratio	Ratio Weighted
Inside	Land	$200,775	1.49	17	.088
	Improvements	1,141,225	8.49	19	.447
	Personal property	697,435	5.17	35	.148
	Total inside	$2,039,435	15.17		.683
Outside	Mineral rights				
	Land	$4,167,440	31.01	17	1.824
	Improvements	1,423,865	10.60	12	.883
	Personal property	5,807,775	43.22	35	1.235
	Total outside	$11,399,080	84.83		3.942
Total county		**$13,438,515**	**100.00**		4.625
Totals	Mineral rights				
	Land	$4,368,215	----	17.00	----
	Improvements	2,565,090	----	14.35	----
	Personal property	6,505,190	----	35.00	----
Total county		$13,438,495			21.62

RATIO COMPUTATION SUMMARY

Mono County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
1	Commercial	$3,750	$19,750	----	$23,500	$470	$6,300	----	$6,770
9	Residential	1,550	45,890	----	47,440	590	12,675	----	13,265
3	Agricultural	79,300	10,150	----	89,450	12,500	6,800	----	19,300

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Outside __Mineral rights							
Land	$84,600	$13,560	34.1	38.0	34.1	16.0	24
Improvements	75,790	25,775	38.4	25.0	38.4	34.0	29
Personal property	----	----	--	--	--	25.0	30
Total	$160,390	$39,335	35.5	23.5	35.5	24.5	--

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Outside__Mineral rights				
Land	$3,386,945	47.84	24	1.9933
Improvements	2,078,377	29.36	29	1.0120
Personal property	1,614,732	22.80	30	.7600
Total outside	$7,080,054	100.00		
Total county	**$7,080,054**	**100.00**		3.7653
Totals___Mineral rights				
Land	$3,386,945	----	24	----
Improvements	2,078,377	----	29	----
Personal property	1,614,732	----	30	----
Total county	$7,080,054			26.56

RATIO COMPUTATION SUMMARY

Monterey County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
6	Commercial	$145,500	$161,000	----	$306,500	$45,080	$39,430	----	$84,510
22	Residential	42,550	164,900	----	207,450	11,285	50,340	----	61,625
2	Industrial	27,600	194,000	$112,200	333,800	7,250	54,500	$30,550	92,300
5	Agricultural	662,100	42,400	----	704,500	160,810	2,990	----	163,800
	Mineral rights	2,500,000	----	----	2,500,000	877,100	----	----	877,100

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$181,400	$54,590	28.9	27.0	28.9	30.1	29
	Improvements	291,550	79,040	27.6	27.0	27.6	27.1	29
	Personal property	----	----	--	--	--	--	35
	Total	$472,950	$133,630	28.7	29.0	28.7	28.3	--
Outside	Mineral rights	$2,500,000	$877,100	--	--	--	35.1	35
	Land	696,350	169,835	25.1	24.0	25.1	24.4	25
	Improvements	270,750	68,220	22.6	25.0	22.6	25.2	23
	Personal property	112,200	30,550	27.8	--	27.8	27.2	--
		1,079,300	268,605	26.5	29.5	26.5	24.9	--
	Total	$3,579,300	$1,145,705	--	--	--	32.0	--
Totals	Mineral rights	$2,500,000	$877,100	--	--	--	35.1	35
	Land	877,750	224,425	24.7	26.0	24.7	25.6	--
	Improvements	562,300	147,260	25.9	27.0	25.9	26.2	--
	Personal property	112,200	30,550	21.8	--	27.8	27.2	--
	Total	$4,052,250	$1,279,335	28.0	29.0	28.0	31.6	--

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$21,392,645	12.08	29	.416
	Improvements	44,396,805	25.08	29	.865
	Personal Property	13,005,555	7.35	35	.210
	Total inside	$78,795,005	44.51		1.491
Outside	Mineral rights	$897,000	.51	35	.015
	Land	48,357,060	27.31	25	1.092
	Improvements	34,953,555	19.74	23	.858
	Personal Property	14,048,085	7.93	35	.226
	Total outside	$98,255,700	55.49		2.191
Total county		$177,050,705	100.00		3.682
Totals	Mineral rights	$897,000	----	26.19	----
	Land	69,749,905	----	--	----
	Improvements	79,350,360	----	26.01	----
	Personal Property	27,053,640	----	35.00	----
Total county		$177,050,705			27.15

Napa County

RATIO COMPUTATION SUMMARY

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value* *Land*	*Improvements*	*Personal Property*	*Total*	*Assessed Value* *Land*	*Improvements*	*Personal Property*	*Total*
5	Commercial	$155,900	$142,600	----	$298,500	$28,250	$40,350	----	$68,600
10	Residential	12,800	61,200	----	74,000	4,000	13,250	----	17,250
1	Industrial	2,725	31,200	$13,500	47,425	900	6,400	$3,000	10,300
6	Outside	86,500	21,000	15,300	122,800	32,550	4,600	2,700	39,850

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$171,425	$33,150	27.2	26.9	25.0	19.3	27
	Improvements	241,000	60,000	23.3	22.0	23.3	24.9	24
	Personal property	13,500	3,000	22.1	22.1	22.0	22.7	30
	Total	$425,925	$96,150	22.8	23.1	26.0	22.6	--
Outside	Mineral rights							
	Land	$86,500	$32,550	36.1	36.0	36.1	37.6	37
	Improvements	21,000	4,600	24.5	18.7	24.5	21.9	25
	Personal property	15,300	2,700	19.1	16.7	19.0	17.7	30
	Total	$122,800	$39,850	31.3	29.5	31.5	32.5	--
Totals	Mineral rights							
	Land	$257,925	$65,700	29.6	31.1	29.6	25.5	--
	Improvements	256,000	64,600	23.5	22.0	23.5	24.7	--
	Personal property	28,000	5,700	19.9	19.5	19.8	19.8	--
	Total	$542,725	$136,000	25.1	25.9	25.2	24.8	28

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$3,638,935	8.23	27	.305
	Improvements	10,389,080	23.49	24	.979
	Personal Property	5,023,980	11.36	30	.379
	Total inside	$19,051,995	43.08		1.663
Outside	Mineral rights				
	Land	$9,134,300	20.65	37	.558
	Improvements	10,274,560	23.23	25	.929
	Personal Property	5,762,910	13.04	30	.435
	Total outside	$25,171,770	56.92		1.922
Total county		$44,223,765	100.00		3.585
Totals	Mineral rights				
	Land	$12,773,235	----	--	----
	Improvements	20,663,640	----	24.49	----
	Personal Property	10,786,890	----	30.0	----
Total county		$44,223,765			27.90

RATIO COMPUTATION SUMMARY

Nevada County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				Assessed Value			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$14,000	$64,550	----	$78,550	$2,400	$16,500	----	$18,900
7	Residential	5,800	44,500	----	50,300	1,400	10,470	----	11,870
1	Industrial	1,500	5,400	$700	7,600	110	500	$400	1,010
1	Timber	11,500	----	----	11,500	1,600	----	----	1,600
3	Rural	31,200	12,300	----	43,500	4,150	4,900	----	9,050

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside ---- Land	$19,800	$3,800	22.6	17.1	22.6	19.2	22
Improvements	109,050	26,970	28.9	23.0	28.9	24.7	24
Personal property	----	----	--	--	--	--	40
Total	$128,850	$30,770	27.5	22.3	27.5	23.9	--
Outside -- Mineral rights							
Land	$48,200	$5,860	11.3	10.3	11.2	12.2	12
Improvements	17,700	5,400	32.3	38.5	32.3	30.5	31
Personal property	700	400	57.1	57.1	57	57.1	40
Total	$66,600	$11,660	17.2	19.3	17	17.5	--
Totals --- Mineral rights							
Land	$68,000	$9,660	--	--	--	--	--
Improvements	126,750	32,370	--	--	--	--	--
Personal property	700	400	--	--	--	--	--
Total	$195,450	$42,430					21

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside --- Land	$898,870	5.26	22	.239
Improvements	3,494,670	20.47	24	.853
Personal property	955,940	5.60	40	.140
Total inside	**$5,349,480**	**31.33**		**1.232**
Outside -- Mineral rights				
Land	$4,633,460	27.14	12	2.261
Improvements	5,372,940	31.46	31	1.014
Personal property	1,719,650	10,07	40	.251
Total outside	**$11,726,050**	**68.67**		**3.526**
Total county	**$17,075,530**	**100.00**		4.758
Totals --- Mineral rights				
Land	$5,532,330	---	12.96	---
Improvements	8,867,610	---	27.80	---
Personal property	2,675,590	---	40	---
Total county	**$17,075,530**			**21.01**

RATIO COMPUTATION SUMMARY

Orange County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
7	Commercial	$485,000	$775,000	----	$1,260,000	$170,610	$231,460	----	$402,070
41	Residential	86,620	399,830	----	486,450	30,100	97,620	----	127,720
2	Industrial	13,000	1,628,000	$229,000	1,870,000	4,830	293,950	$52,730	351,510
14	Agricultural	266,950	118,300	----	385,250	95,320	44,300	----	139,620
	Mineral Rights	251,104,000	----	----	251,104,000	85,170,880	----	----	85,170,880

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$561,920	$197,540	37.2	35.0	37.2	35.2	36
	Improvements	1,058,030	397,790	24.1	24.0	24.4	28.1	26
	Personal property	----	----	--	--	--	--	40
	Total	$1,619,950	$495,330	28.2	27.0	28.2	30.6	--
Outside	Mineral rights	$251,104,000	$85,170,880	--	--	--	33.9	34
	Land	289,650	103,320	37.6	36.0	37.6	35.7	36
	Improvements	1,861,100	369,540	31.0	35.0	31.0	19.8	31
	Personal property	229,000	52,730	--	--	--	23.0	40
	Total	$253,485,750	$85,696,470	34.1	32.0	34.1	22.1 33.8	
Totals	Mineral rights	$251,104,000	$85,170,880	--	--	--	33.9	34
	Land	851,570	300,860	37.3	35.0	37.3	35.3	--
	Improvements	2,921,130	667,300	26.0	25.0	26.0	23.6	--
	Personal property	229,000	52,730	--	--	--	23.0	--
	Total	$255,105,700	$86,191,800	30.0	29.0	30.0	25.5 33.8	32

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$39,678,390 70,649,880	23.36	35.25	.663
	Improvements	124,075,120	26.27	26	1.010
	Personal property	22,950,085	4.86	40	.121
	Total inside	$257,353,475	54.49	32.05	1.794
Outside	Mineral rights	$45,504,100	9.63	34	.283
	Land	69,281,380	14.67	36	.408
	Improvements	83,473,350	17.67	31	.570
	Personal property	16,741,365	3.54	40	.089
	Total outside	$215,000,195	45.51		1.350
Total county		$472,353,670	100.00		3.144
Totals	Mineral rights	$85,182,490	---	35.22	---
	Land	139,931,260	---		
	Improvements	207,548,470	---	27.80	---
	Personal property	39,691,450	---	40.00	---
Total county		$472,353,670			31.81

Placer County

RATIO COMPUTATION SUMMARY

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
7	Residential	$12,100	$50,900	----	$72,000	$1,500	$16,350	----	$17,850
2	Commercial	15,000	76,500	$8,500	100,000	3,750	21,000	$1,550	26,300
4	Residential	4,250	20,400	----	24,650	705	4,950	----	5,655
1	Commercial	2,500	17,500	----	20,000	200	4,350	----	4,550
2	Industrial	5,624	33,376	22,300	61,300	800	5,700	1,560	8,060
11	Rural	186,950	57,000	----	178,750	39,830	13,900	----	53,730

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$27,100	$5,250	15.0	15.4	15.0	19.4	17
Improvements	136,400	37,350	27.3	27.5	27.1	27.4	28
Personal property	8,500	1,550	18.2	--	--	18.2	30
Total	$172,000	$44,130	24.3	24.7	24.2	25.7	--
Outside — Mineral rights							
Land	$199,324	$41,585	20.5	14.7	14.0	20.9	20
Improvements	128,276	28,900	31.7	24.5	31.8	22.5	24
Personal property	22,300	1,560	7.0	--	--	7.0	30
Total	$349,900	$72,045	24.7	23.3	24.8	20.6	--
Totals — Mineral rights							
Land	$226,424	$46,835	18.6	14.6	18.6	20.7	--
Improvements	264,676	66,250	30.0	26.1	23.0	25.0	--
Personal property	30,800	3,110	12.6	--	--	10.1	--
Total	$521,900	$116,195	24.6	24.0	24.0	22.3	24

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$1,571,030	3.88	17	.228
Improvements	10,031,835	24.80	28	.886
Personal property	2,441,165	6.04	30	.201
Total inside	$14,044,030	34.72		1.315
Outside — Mineral rights				
Land	$9,832,525	24.31	20	1,215
Improvements	13,087,690	32.35	24	1.347
Personal property	3,486,110	8.62	30	.287
Total outside	$26,406,325	65.28		2.849
Total county	$40,450,355	100.00		4.164
Totals — Mineral rights				
Land	$11,403,555	----	19.53	----
Improvements	23,119,525	----	25.59	----
Personal property	5,927,275	----	30.00	----
Total county	$40,450,355			24.01

RATIO COMPUTATION SUMMARY

Plumas County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
5	Residential	$2,160	$46,140	----	$48,300	$395	$17,945	----	$18,610
1	Commercial	3,250	11,750	----	15,000	360	6,385	----	6,475
1	Commercial	8,900	21,100	----	30,000	370	6,660	----	7,030
1	Industrial	1,000	25,800	$10,700	37,500	120	4,370	$4,650	9,140
7	Residential	11,500	61,300	----	72,800	2,340	22,460	----	24,800
7	Rural and Timber	151,715	16,290	----	168,000	22,350	9,295	----	31,645

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$5,410	$755	16.7	12.3	16.7	14.0	17
Improvements	57,890	24,330	41.9	39.1	42.0	42.0	40
Personal property	----	----	--	--	--	--	30
Total	$63,300	$25,085	39.4	37.3	37.0	39.6	--
Outside — Mineral rights							
Land	$173,110	$25,180	17.1	15.7	16.0	14.5	17
Improvements	124,490	42,785	43.2	39.3	43.2	34.4	35
Personal property	----	----	--	--	--	--	30
Total	$297,600	$67,965	24.6	21.9	16.0	23.6	--
Totals — Mineral rights							
Land	$178,520	$25,935	17.0	17.0	17.0	14.5	--
Improvements	182,380	67,115	42.7	39.1	42.8	36.8	--
Personal property	----	----	--	--	--	--	30
Total	$360,900	$93,050	28.6	27.6	28.6	26.3	28

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$127,785	.93	17	.055
Improvements	1,316,195	9.52	40	.238
Personal property	126,010	.91	30	.030
Total inside	$1,569,990	11.36		.323
Outside — Mineral rights				
Land	$3,081,220	22.29	17	1.311
Improvements	6,736,230	48.74	35	1.393
Personal property	2,434,080	17.61	30	.587
Total outside	$12,251,530	88.64		3.291
Total county	**$13,821,520**	**100.00**		3.614
Totals — Mineral rights				
Land	$3,209,005	----	17.00	----
Improvements	8,052,425	----	35.73	----
Personal property	2,560,090	----	30.00	----
Total county	$13,821,520			27.67

RATIO COMPUTATION SUMMARY

Riverside County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
10	Commercial	$543,700	$426,800	----	$970,500	$137,240	$115,040	----	$252,280
30	Residential	85,970	313,780	----	399,750	22,970	92,030	----	115,000
2	Industrial	14,250	434,800	$342,950	792,000	2,310	111,540	$89,540	203,390
16	Agricultural	240,250	167,300	----	407,550	69,350	44,380	----	113,730

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$695,620	$182,530	29.5	28.0	37.0	26.2	30
Improvements	793,930	221,590	29.5	27.0	29.5	27.9	30
Personal property	----	----	--	--	--	26.0	40
Total	$1,489,550	$404,120	29.0	29.0	32.0	27.1	--
Outside — Mineral rights							
Land	$188,550	$49,340	25.4	27.5	25.4	26.2	27
Improvements	548,750	141,400	26.3	23.9	26.3	25.8	27
Personal property	342,950	89,540	24.8	24.8	24.8	26.1	40
Total	$1,080,250	$280,280	27.3	27.4	27.3	25.9	--
Totals — Mineral rights							
Land	$884,170	$231,870	28.7	27.0	28.7	26.2	--
Improvements	1,342,680	362,990	28.8	27.0	27.0	27.0	--
Personal property	342,950	89,540	24.8	24.8	26.3	26.0	--
Total	$2,569,800	$684,400	28.7	29.0	32.0	26.6	30

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	**$36,088,430**	**14.75**	**30**	**.492**
Improvements	**85,606,560**	**35.00**	**30**	**1.166**
Personal property	**16,142,190**	**6.60**	**40**	**.165**
Total inside	**$137,837,180**	**56.35**		**18.23**
Outside — Mineral rights				
Land	**$45,305,990**	**18.52**	**27**	**.686**
Improvements	**50,186,470**	**20.51**	**27**	**.760**
Personal property	**11,292,878**	**4.62**	**40**	**.116**
Total outside	**$106,785,338**	**43.65**		**15.62**
Total county	**$244,622,518**	**100.00**		**33.85**
Totals — Mineral rights				
Land	**$81,394,420**	---	**28.25**	---
Improvements	**135,793,030**	---	**28.82**	---
Personal property	**27,435,068**	---	**40.00**	---
Total county	**$244,622,518**			**29.54**

RATIO COMPUTATION SUMMARY **Sacramento County**

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
31	Residential	$53,700	$273,600	----	$327,300	$17,710	$53,630	----	$71,340
10	Commercial	993,050	602,650	----	1,585,700	198,890	140,050	----	338,940
3	Industrial	36,900	415,200	----	452,100	10,920	135,600	----	146,520
8	Rural	140,500	45,500	----	186,000	36,990	6,950	----	43,940

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$1,046,750	$216,600	32.1	31.6	33.0	20.7	24
	Improvements	876,250	193,680	19.7	19.0	19.8	22.1	21
	Personal property	----	----	--	--	--	--	30
	Total	$1,923,000	$410,280	21.6	22.1	21.0	21.3	--
Outside	Mineral rights	----	----	--	--	--	35.84	36
	Land	$177,400	$47,910	23.0	19.3	18.0	27.0	27
	Improvements	460,700	142,550	24.2	23.3	24.2	30.9	20
	Personal property	----	----	--	--	--	--	30
	Total	$638,100	$190,460	23.9	21.6	23.9	29.8	--
Totals	Mineral rights							
	Land	$1,224,150	$264,510	30.2	29.6	30.2	21.6	--
	Improvements	1,336,950	336,230	20.5	18.9	20.6	25.2	--
	Personal property							
	Total	$2,561,100	$600,740	22.1	22.1	22.1	23.5	24

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$42,053,040 100 MR	14.80	24	.616
	Improvements	88,424,080	31.12	21	1.482
	Personal property	31,387,100	11.04	30	.368
	Total inside	$161,864,320	56.96		2.466
Outside	Mineral rights	$19,568,920	6.89	36	.191
	Land	31,748,247	11.17	27	.414
	Improvements	54,507,175	19.18	20	.960
	Personal property	16,477,535	5.80	30	.193
	Total outside	$122,301,877	43.04		1.758
Total county		$284,166,197	100.00		42.24
Totals	Mineral rights	$19,569,020	---	26.97	---
	Land	73,801,287	---		---
	Improvements	142,931,255	---	20.61	---
	Personal property	47,864,635	---	30	---
Total county		$284,166,197			23.68

RATIO COMPUTATION SUMMARY

San Benito County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
2	Commercial	$16,600	$14,900	----	$31,500	$7,660	$3,750	----	$11,410
1	Industrial	1,500	11,300	----	12,800	400	3,170	----	3,570
13	Residential	18,000	64,950	----	82,950	4,550	15,530	----	20,080
4	Agricultural	68,850	14,250	----	83,100	12,920	1,210	----	14,130

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$34,600	$12,200	27.7	27.0	27.7	35.3	31
	Improvements	79,850	19,280	21.8	19.0	21.8	24.1	25
	Personal property	----	----	--	--	--	35.0	35
	Total	$114,450	$31,490	24.6	24.0	24.6	27.5	--
Outside	Mineral rights							
	Land	$70,350	$13,320	22.9	21.0	22.9	18.9	20
	Improvements	25,550	4,380	14.8	10.0	14.8	17.1	15
	Personal property	----	----	--	--	--	35.0	35
	Total	$95,900	$17,700	20.6	21.0	20.6	18.5	--
Totals	Mineral rights							
	Land	$104,950	$25,530	26.5	26.0	26.5	24.3	--
	Improvements	105,400	23,660	19.4	19.0	19.4	22.4	--
	Personal property							
	Total	$210,350	$49,190	23.6	22.0	23.6	23.4	23

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$934,130	4.29	31	.138
	Improvements	2,782,790	12.78	25	.511
	Personal property	930,520	4.27	35	.122
	Total inside	$4,647,440	21.34		.771
Outside	Mineral rights				
	Land	$9,624,790	44.19	20	2.209
	Improvements	3,985,220	18.30	15	1.220
	Personal property	3,521,470	16.17	35	.462
	Total outside	$17,131,480	78.66		3.891
Total county		**$21,778,920**	**100.00**		4.662
Totals	Mineral rights				
	Land	$10,558,920	----	20.65	----
	Improvements	6,768,010	----	17.95	----
	Personal property	4,451,990	----	35.00	----
Total county		$21,778,920			21.45

RATIO COMPUTATION SUMMARY

San Bernardino County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				Assessed Value			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
69	Residential (in)	$80,060	$536,530	----	$616,590	$18,470	$91,020	----	$109,490
29	Commercial	1,574,600	1,248,860	----	2,823,460	295,640	325,860	----	621,500
2	Rural	19,300	34,050	----	53,350	9,270	7,320	----	16,590
2	Industrial	11,700	245,250	$61,250	318,200	1,680	79,980	$20,020	101,680
15	Rural (outside)	128,200	146,000	----	274,200	56,050	35,620	----	91,670
14	Commercial	316,250	402,750	----	719,000	30,940	84,070	----	115,010
12	Residential	14,760	74,740	----	89,500	2,210	14,880	----	17,090
7	Industrial	1,287,400	7,258,900	73,300	8,619,600	76,100	724,850	----	815,480

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$1,685,660	$325,060	24.6	21.0	21.0	19.3	23
Improvements	2,064,690	504,180	19.8	19.0	16.0	24.4	21
Personal property	61,250	20,020	--	--	--	32.7	30
Total	$3,811,600	$849,260	21.1	20.0	19.0	22.3	--
Outside — Mineral rights							
Land	$1,746,610	$165,300	23.5	10.0	17.0	9.5	22
Improvements	7,882,390	859,420	20.2	19.0	20.2	10.9	21
Personal property	73,300	14,530	--	--	--	19.8	30
Total	$9,702,300	$1,039,250	20.9	18.0	20.9	10.7	--
Totals — Mineral rights							
Land	$3,432,270	$490,360	24.2	20.0	20.0	14.3	--
Improvements	9,947,080	1,363,600	19.9	19.0	19.9	13.7	--
Personal property	134,550	34,550	--	--	--	25.7	--
Total	$13,413,900	$1,888,510	21.0	20.0	19.0	14.0	22

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$29,040,880	11.64	23	.506
Improvements	73,982,650	29.66	21	1.412
Personal property	12,295,300	4.93	30	.164
Total inside	$115,318,830	46.23		2.082
Outside — Mineral rights				
Land	$40,571,640	16.27	22	.739
Improvements	80,045,200	32.09	21	1.528
Personal property	13,490,830	5.41	30	.180
Total outside	$134,107,670	53.77		2.447
Total county	**$249,426,500**	**100.00**		4.529
Totals — Mineral rights				
Land	$69,612,520	----	22.41	----
Improvements	154,027,850	----	21	----
Personal property	25,786,130	----	30	----
Total county	$249,426,500			22.07

RATIO COMPUTATION SUMMARY

San Diego County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
11	Commercial	$2,093,000	$1,517,500	----	$3,610,500	$650,590	$210,220	----	$860,810
49	Residential	95,650	433,900	----	529,550	30,910	89,110	----	120,020
2	Industrial	43,000	350,000	$6,500	399,500	7,930	51,940	$9,800	69,670
15	Agricultural	177,700	40,700	----	218,400	28,790	10,780	----	39,570

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$2,231,650	$689,430	31.4	31.0	31.4	30.9	31
Improvements	2,301,400	351,270	20.2	21.0	22.0	15.3	22
Personal property	6,500	9,800	--	--	--	23.1	36
Total	$4,539,550	$1,050,500	23.5	24.0	23.5	23.1	--
Outside — Mineral rights							
Land	$177,700	$28,790	21.7	23.0	21.7	16.2	26
Improvements	40,700	10,780	24.3	24.0	26.9	26.5	27
Personal property	----	----	--	--	--	--	40
Total	$218,400	$39,570	22.3	23.0	23.0	18.1	--
Totals — Mineral rights							
Land	$2,409,350	$718,220	29.5	29.0	29.5	29.8	--
Improvements	2,342,100	362,050	20.8	22.0	22.0	15.5	--
Personal property	6,500	9,800	--	--	--	22.9	--
Total	$4,757,950	$1,090,070	23.2	25.0	22.0	22.9	--

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$118,271,610	22.31	31	.719
Improvements	205,159,160	38.70	22	1.759
Personal property	78,737,055	14.86	36	.412
Total inside	$402,167,825	75.87		2.890
Outside — Mineral rights				
Land	$42,749,410	8.06	26	.310
Improvements	70,632,360	13.32	27	.493
Personal property	14,559,750	2.75	40	.069
Total outside	$127,941,520	24.13		.872
Total county	**$530,109,345**	**100.00**		37.62
Totals — Mineral rights				
Land	$161,021,020	----	29.49	----
Improvements	275,791,520	----	23.10	----
Personal property	93,296,805	----	36.57	----
Total county	$530,109,345			**26.58**

RATIO COMPUTATION SUMMARY

San Francisco County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
4	Industrial	$219,500	$490,500	----	$710,000	$61,620	$174,184	----	$235,804
13	Commercial	1,366,000	1,777,000	----	3,143,000	848,880	595,400	----	1,444,280
46	Residential	182,750	641,250	----	824,000	42,850	122,250	----	165,100

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$1,768,250	$953,350	32.7	28.0	24.0	53.9	36
Improvements	2,908,750	891,834	21.1	19.0	14.0	30.7	27
Personal property							
Total	$4,677,000	$1,845,184	25.1	18.0	17.0	39.4	38
Totals — Mineral rights							
Land	$1,768,250	$953,350	32.7	28.0	24.0	53.9	--
Improvements	2,908,750	891,834	21.1	19.0	14.0	30.7	--
Personal property							
Total	$4,677,000	$1,845,184	25.1	18.0	17.0	39.4	--

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$341,000,000	32.88	36	.93
Improvements	494,000,000	47.64	27	1.764
Personal property	202,000,000	19.48	38	.513
Total inside	$1,037,000,000	100.00		
Total county	**$1,037,000,000**	**100.00**		3.190
Totals — Mineral rights				
Land	$341,000,000	----	36	----
Improvements	494,000,000	----	27	----
Personal property	202,000,000	----	38	----
Total county	$1,037,000,000			31.35

RATIO COMPUTATION SUMMARY

San Joaquin County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
10	Commercial	$570,600	$473,900	----	$1,044,500	$111,350	$151,765	----	$263,115
26	Residential	46,750	201,800	----	248,550	11,305	50,585	----	61,890
11	Outside	152,250	58,500	$2,000	212,750	30,780	19,715	$590	51,085

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$617,350	$122,655	25.8	23.0	25.8	19.9	26
	Improvements	675,750	202,350	26.5	26.6	26.5	29.9	27
	Personal property	----	----	--	--	--	--	40
	Total	$1,293,100	$325,005	25.2	24.8	25.3	25.1	--
Outside	Mineral rights	$4,578,700	$1,363,205	--	--	--	--	30
	Land	152,250	30,780	20.3	24.0	20.3	20.2	21
	Improvements	58,500	19,715	34.2	30.8	34.5	33.7	33
	Personal property	2,000	590	29.5	--	--	29.5	40
	Total	$212,750	$51,085	21.5	23.8	21.6	24.0	--
Totals	Mineral rights							
	Land	$769,600	$153,435	24.6	23.8	24.6	19.9	--
	Improvements	734,200	222,065	27.3	26.7	27.3	30.2	--
	Personal property	2,000	590	29.5	--	--	29.5	--
	Total	$1,505,800	$376,090	24.3	24.0	24.4	25.0	28

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$31,502,035	11.26	26	.433
	Improvements	75,640,160	27.04	27	1.002
	Personal property	21,349,540	7.63	40	.191
	Total inside	$128,491,735	45.94		1.626
Outside	Mineral rights	$1,454,075	.52	30	.017
	Land	62,136,570	22.22	21	1.058
	Improvements	63,727,485	22.78	33	.690
	Personal property	23,891,195	8.54	40	.213
	Total outside	$151,209,325	54.06		1.978
Total county		**$279,701,060**	**100.00**		3.604
Totals	Mineral rights	$1,454,075	----	22.54	----
	Land	93,638,605	----		
	Improvements	139,367,645	----	29.51	----
	Personal property	45,240,735	----	40	----
Total county		$279,701,060			27.74

RATIO COMPUTATION SUMMARY **San Luis Obispo County**

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
9	Commercial	$141,500	$183,500	----	$325,000	$48,330	$40,990	----	$89,320
26	Residential	37,050	183,750	----	220,800	7,000	36,120	----	43,120
1	Industrial	3,000	37,000	----	40,000	350	4,450	----	4,800
8	Agricultural	171,000	65,050	----	236,050	33,140	11,930	----	45,070
	Mineral rights	20,791,500	----	----	20,791,500	5,445,290	----	----	5,445,290

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$178,550	$55,330	21.1	20.0	21.1	31.0	24
	Improvements	367,250	77,110	21.6	20.0	19.0	21.0	22
	Personal property	----	----	--	--	--	--	35
	Total	$545,800	$132,440	21.2	20.0	20.0	24.2	--
Outside	Mineral rights	$20,791,500	$5,445,290	--	--	--	26.2	27
	Land	174,000	33,490	14.6	15.0	14.6	19.2	20
	Improvements	102,050	16,380	16.2	16.5	16.2	16.1	19
	Personal property	----	----	--	--	--	--	35
	Total	$21,067,550	$5,495,160	15.7	15.0	15.7	18.0 26.1	-- --
Totals	Mineral rights	$20,791,500	$5,445,290	--	--	--	26.2	--
	Land	352,550	88,820	20.0	19.0	20.0	25.2	--
	Improvements	469,300	93,490	20.8	19.0	19.0	19.1	--
	Personal property							
	Total	$21,613,350	$5,627,600	20.0	20.0	20.0	26.0	24

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$4,914,830	7.62	24	.318
	Improvements	10,585,065	16.40	22	.745
	Personal property	3,329,175	5.16	35	.147
	Total inside	$18,829,070	29.17		1.210
Outside	Mineral rights	$5,804,185	8.99	27	.333
	Land	18,928,723	29.33	20	1.467
	Improvements	12,630,195	19.57	19	1.030
	Personal property	8,348,815	12.94	35	.369
	Total outside	$45,711,918	70.83		3.199
Total county		**$64,540,988**	**100.00**		4.409
Totals	Mineral rights	$5,804,185	----	21.70	----
	Land	23,843,553	----		----
	Improvements	23,215,260	----	20.26	----
	Personal property	11,677,990	----	35	----
Total county		$64,540,988			22.68

RATIO COMPUTATION SUMMARY **San Mateo County**

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
34	Residential	$114,650	$384,600	----	$443,150	$20,225	$61,460	----	$81,685
16	Commercial	654,450	616,250	----	1,326,800	92,450	102,500	----	194,950
3 (m)	Industrial	94,400	650,300	$286,000	1,030,700	15,700	150,420	$53,610	219,730
4	Outside	167,000	28,500	----	195,500	29,900	5,450	----	35,350

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$863,500	$128,375	17.4	16.7	20.0	14.9	18
	Improvements	1,651,150	314,380	17.7	15.8	14.0	19.0	19
	Personal property	286,000	53,610	18.3	18.3	18.0	18.7	25
	Total	$2,800,650	$496,365	16.2	16.7	17.0	17.7	--
Outside	Mineral rights							
	Land	$167,000	$29,900	20.5	19.0	20.5	17.9	20
	Improvements	28,500	5,450	18.2	18.6	18.3	19.1	19
	Personal property	----	----	--	--	--	--	25
	Total	$195,500	$35,350	18.0	18.8	17.8	18.1	--
Totals	Mineral rights							
	Land	$1,030,500	$158,275	17.6	17.5	17.7	15.4	--
	Improvements	1,679,650	319,830	17.7	16.3	17.9	19.0	--
	Personal property	286,000	53,610	18.3	18.3	18.5	18.7	--
	Total	$2,996,150	$531,715	16.4	16.8	16.4	17.7	20

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$50,438,250	18.82	18.0	1.046
	Improvements	128,956,058	48.13	19.0	2.533
	Personal property	24,806,083	9.26	25.0	.370
	Total inside	$204,200,391	76.21		3.949
Outside	Mineral rights				
	Land	$19,755,933	7.37	20.0	.369
	Improvements	34,411,286	12.84	19.0	.676
	Personal property	9,586,325	3.58	25.0	.143
	Total outside	$63,753,544	23.79		1.188
Total county		$267,953,935	100.00		3.949
Totals	Mineral rights				
	Land	$70,194,183	----	18.52	----
	Improvements	163,367,344	----	19.00	----
	Personal property	34,392,408	----	25.00	----
Total county		$267,953,935	100.00		19.47

RATIO COMPUTATION SUMMARY **Santa Barbara County**

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	Use Type	Appraised Value Land	Appraised Value Improvements	Appraised Value Personal Property	Appraised Value Total	Assessed Value Land	Assessed Value Improvements	Assessed Value Personal Property	Assessed Value Total
7	Commercial	$257,250	$216,750	----	$474,000	$88,620	$53,880	----	$142,500
25	Residential	62,600	304,700	----	367,300	14,090	75,910	----	90,000
3	Industrial (outside)	1,128,500	2,076,000	$409,400	3,613,900	316,860	625,240	$125,760	1,067,860
8	Agricultural	176,550	160,850	----	337,400	40,350	33,010	----	73,360
	Mineral rights	215,182,500	----	----	215,182,500	69,340,680	----	----	69,340,680

2. Appraisal ratio data

Class		Total Appraised Value	Total Assessed Value	Ratio Average	Ratio Median	Ratio Mode	Total Value Ratio	Ratio
Inside	Land	$319,850	$102,710	25.0	22.0	25.0	32.1	27
	Improvements	521,450	129,790	25.1	26.0	25.1	24.9	25
	Personal property	----	----	--	--	--	--	30
	Total	$841,300	$232,500	25.8	24.5	25.8	27.6	--
Outside	Mineral rights	$215,182,500	$69,340,680	--	--	--	32.2	33
	Land	1,305,050	357,210	28.0	25.0	28.0	27.4	26
	Improvements	2,236,850	658,250	23.9	21.5	23.9	29.4	24
	Personal property	409,400	125,760	29.9	--	29.9	30.7	30
	Total	$219,133,800	$70,481,900	24.7	22.0	24.7	28.9 32.2	--
Totals	Mineral rights	$215,182,500	$69,340,680	--	--	--	32.2	--
	Land	1,624,900	459,920	25.7	23.0	25.7	28.3	--
	Improvements	2,758,300	788,040	24.9	25.0	24.9	28.6	--
	Personal property	409,400	125,760	--	--	--	30.7	--
	Total	$219,975,100	$70,714,400	25.5	24.0	25.5	32.1	28

3. County ratio computations

Class		Assessed Value 1951	Percent of Total	Ratio	Ratio Weighted
Inside	Land	$18,036,284	8.49	27	----
	Improvements	40,547,173	19.09	25	----
	Personal property	10,974,463	5.17	30	----
	Total inside	$69,557,920	32.75		1.250
Outside	Mineral rights	$70,710,320	33.30	33	1.009
	Land	29,571,120	13.92	26	.535
	Improvements	29,601,348	13.94	24	.581
	Personal property	12,933,164	6.09	30	.203
	Total outside	$142,815,952	67.25		2.328
Total county		$212,373,872	100.00		3.578
Totals	Mineral rights	$70,710,320	----	29.97	----
	Land	47,607,404	----		----
	Improvements	70,148,521	----	24.57	----
	Personal property	23,907,627	----	30	----
Total county		$212,373,872			27.94

RATIO COMPUTATION SUMMARY

Santa Clara County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
35	Residential	$79,450	$306,900	----	$386,350	$18,540	$67,790	----	$86,330
13	Commercial	806,700	497,300	----	1,304,000	277,490	126,330	----	403,820
4	Industrial (outside)	134,300	730,800	----	865,100	33,470	188,370	----	221,840
7	Rural	164,000	60,000	----	224,000	40,420	14,110	----	54,530

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside — Land	$886,150	$296,030	26.7	25.2	20.0	33.4	28
Improvements	804,200	194,120	23.1	23.0	23.0	24.1	24
Personal property	----	----	--	--	--	--	40
Total	$1,690,350	$490,150	24.6	23.2	20.0	29.0	--
Outside — Mineral rights							
Land	$298,300	$73,890	23.0	23.0	23.0	24.8	25
Improvements	790,800	202,480	26.4	24.4	33.0	25.6	26
Personal property	----	----	--	--	--	--	40
Total	$1,089,100	$276,370	24.8	23.5	24.8	25.4	--
Totals — Mineral rights							
Land	$1,184,450	$369,920	26.0	25.1	20.0	31.2	--
Improvements	1,595,000	396,600	23.7	23.1	23.0	24.9	--
Personal property							
Total	$2,779,450	$766,520	24.7	23.4	24.0	27.6	27

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside — Land	$53,097,330	13.56	28	.484
Improvements	126,051,510	32.17	24	1.340
Personal property	44,609,000	11.38	40	.285
Total inside	$223,757,840	57.11		2.109
Outside — Mineral rights				
Land	$49,682,040	12.68	25	.507
Improvements	96,927,460	24.74	26	.951
Personal property	21,423,570	5.47	40	.137
Total outside	$168,033,070	42.89		1.595
Total county	**$391,790,910**	**100.00**		3.704
Totals — Mineral rights				
Land	$102,779,370	----	26.46	----
Improvements	222,978,970	----	24.83	----
Personal property	66,032,570	----	40.00	----
Total county	$391,790,910			26.99

RATIO COMPUTATION SUMMARY

Santa Cruz County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	Use Type	Appraised Value				Assessed Value			
		Land	Improvements	Personal Property	Total	Land	Improvements	Personal Property	Total
6	Commercial	$116,500	$90,000	----	$206,500	$30,840	$16,330	----	$47,170
24	Residential	55,400	198,550	----	253,950	10,270	35,220	----	45,490
10	Outside	726,300	1,125,350	$5,840,000	7,691,650	89,000	189,480	$160,340	438,820

2. Appraisal ratio data

	Class	Total Appraised Value	Total Assessed Value	Ratio Average	Ratio Median	Ratio Mode	Total Value Ratio	Ratio
Inside	Land	$171,900	$41,110	23.0	23.6	23.0	23.9	22
	Improvements	288,550	51,550	17.5	18.0	17.9	17.9	18
	Personal property	----	----	--	--	--	--	25
	Total	$460,450	$92,660	19.4	19.4	19.5	20.1	--
Outside	Mineral rights							
	Land	$726,300	$89,000	23.6	26.5	23.7	12.3	24
	Improvements	1,125,350	189,480	34.0	22.2	34.2	16.8	22
	Personal property	5,840,000	160,340	2.7	--	--	2.7	25
	Total	$7,691,650	$438,820	23.4	26.2	23.5	5.7	--
Totals	Mineral rights							
	Land	$898,200	$130,110	23.1	24.0	23.2	14.5	--
	Improvements	1,413,900	241,030	20.4	19.0	20.5	17.0	--
	Personal property	5,840,000	160,340	2.7	--	--	2.7	--
	Total	$8,152,100	$531,480	20.4	20.0	20.5	6.5	21

3. County ratio computations

	Class	Assessed Value 1951	Percent of Total	Ratio	Ratio Weighted
Inside	Land	$11,123,120	16.82	22	.764
	Improvements	19,595,665	29.62	18	1.645
	Personal property	4,077,027	6.17	25	.247
	Total inside	$34,795,812	52.61		2.656
Outside	Mineral rights				
	Land	$12,662,305	19.15	24	.798
	Improvements	15,190,555	22.96	22	1.044
	Personal property	3,490,713	5.28	25	.211
	Total outside	$31,343,573	47.39		2.053
Total county		**$66,139,385**	**100.00**	22	4.709
Totals	Mineral rights				
	Land	$23,785,425	----	23.02	----
	Improvements	34,786,220	----	19.55	----
	Personal property	7,567,740	----	25	----
Total county		$66,139,385			21.23

RATIO COMPUTATION SUMMARY **Shasta County**

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$505,000	$368,500	----	$873,500	$37,150	$92,815	----	$129,965
9	Residential	13,450	73,700	----	87,150	2,355	16,250	----	18,605
1	Industrial	1,100	25,000	----	26,100	150	3,000	----	3,150
5	Rural	118,100	9,950	----	128,050	18,800	1,400	----	20,200

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$518,450	$39,505	15.5	13.8	11.0	7.62	16
	Improvements	442,200	109,065	23.1	23.4	19.0	24.66	23
	Personal property							
	Total	$960,650	$148,570	21.8	22.6	22.4	15.5	--
Outside	Land	$119,200	$18,950	14.0	12.8	14.1	15.9	16
	Improvements	34,950	4,400	13.4	12.0	12.0	12.6	14
	Personal property	----	----	--	--	--	--	35
	Total	$154,150	$23,350	14.2	12.0	12.0	15.1	--
Totals	Mineral rights							
	Land	$637,650	$58,455	15.3	13.8	15.4	9.2	--
	Improvements	477,150	113,465	20.8	19.0	20.8	23.8	--
	Personal property							
	Total	$1,114,800	$171,920	19.3	19.5	19.2	15.4	19

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$1,523,155	5.12	16	.320
	Improvements	5,650,525	19.00	23	.826
	Personal property	1,686,437	5.67	35	.162
	Total inside	$8,860,117	29.79	24.07	1.308
Outside	Mineral rights				
	Land	$10,562,477	35.52	16	2.220
	Improvements	5,530,040	18.59	14	1.327
	Personal property	4,786,710	16.10	35	.460
	Total outside	$20,879,227	70.21	19.83	4.007
Total county		$29,739,344	100.00		5.315
Totals	Mineral rights				
	Land	$12,085,632	----	16.00	----
	Improvements	11,180,565	----	17.45	----
	Personal property	6,473,147	----	35.00	----
Total county		$29,739,344	100.00		18.81

RATIO COMPUTATION SUMMARY

Sierra County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
1	Commercial—in	$1,400	$9,400	----	$10,800	$650	$4,650	----	$5,300
2	Commercial—out	8,250	29,750	----	38,000	640	9,010	----	9,650
2	Residential—in	850	9,150	----	10,000	315	1,845	----	2,160
8	Residential—out	7,450	58,800	----	66,250	1,600	18,395	----	19,995
3	Rural	94,250	13,000	----	107,250	19,645	2,185	----	21,830

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$2,250	$965	40.0	38.0	40.0	42.9	30
Improvements	18,550	6,495	29.1	22.9	29.3	35.0	29
Personal property	----	----	--	--	--	--	40
Total	$20,800	$7,460	30.1	24.1	30.0	35.9	--
Outside—Mineral rights							
Land	$109,950	$21,885	21.2	21.0	21.2	19.9	21
Improvements	101,550	29,590	28.4	32.3	33.0	29.1	25
Personal property	----	----	--	--	--	--	40
Total	$211,500	$51,475	25.6	25.6	34.0	24.3	--
Totals—Mineral rights							
Land	$112,200	$22,850	24.7	22.8	38.0	20.4	--
Improvements	120,100	36,085	28.6	32.1	33.0	30.0	--
Personal property							
Total	$232,300	$58,935	26.4	25.6	34.0	25.4	24

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$46,895	1.21	30	.043
Improvements	257,675	6.65	29	.229
Personal property	64,755	1.67	40	.041
Total inside	$369,325	9.53		.313
Outside—Mineral rights				
Land	$1,852,350	47.81	21	2.276
Improvements	1,012,070	26.12	25	1.044
Personal property	641,050	16.54	40	.413
Total outside	$3,505,470	90.47		3.733
Total county	**$3,874,795**	**100.00**		4.046
Totals—Mineral rights				
Land	$1,899,245	----	21.16	----
Improvements	1,269,745	----	25.72	----
Personal property	705,805	----	40.00	----
Total county	$3,874,795			24.72

RATIO COMPUTATION SUMMARY

Siskiyou County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
10	Residential	$5,750	$72,950	----	$78,700	$1,300	$13,610	----	$14,910
2	Commercial	5,450	49,500	----	55,000	2,200	8,505	----	10,705
10	Outside	197,500	17,000	----	214,500	54,515	3,590	----	58,105
1	Industrial	1,000	108,000	----	109,000	200	37,605	----	37,805

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$11,200	$3,500	30.9	25.0	31.0	31.3	31
Improvements	122,500	22,115	18.8	18.5	18.8	18.1	19
Personal property	----	----	--	--	--	--	30
Total	$133,700	$25,615	20.2	19.8	20.4	19.2	--
Outside—Mineral rights							
Land	$198,500	$54,715	25.3	21.8	25.3	27.6	27
Improvements	125,000	41,195	24.0	24.3	24.0	33.0	24
Personal property	----	----	--	--	--	--	30
Total	$323,500	$95,910	26.1	23.2	26.1	29.6	--
Totals—Mineral rights							
Land	$209,700	$58,215	28.2	25.0	28.3	27.8	--
Improvements	247,500	63,310	21.1	19.3	21.1	25.6	--
Personal property							
Total	$457,200	$121,525	23.1	20.3	23.2	26.6	26

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$1,254,770	3.67	31	.118
Improvements	5,291,580	15.47	19	.814
Personal property	2,170,765	6.35	30	.212
Total inside	$8,717,115	25.49		1.144
Outside—Mineral rights				
Land	$11,521,665	33.69	27	1.247
Improvements	7,060,695	20.65	24	.860
Personal property	6,900,220	20.18	30	.672
Total outside	$25,482,580	74.51		2.779
Total county	**$34,199,695**	**100.00**		3.923
Totals—Mineral rights				
Land	$12,776,435	----	27.35	----
Improvements	12,352,275	----	21.57	----
Personal property	9,070,985	----	.30	----
Total county	$34,199,695			25.48

RATIO COMPUTATION SUMMARY

Solano County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
16	Residential	$47,600	$205,650	----	$253,250	$8,070	$50,900	----	$58,970
8	Commercial	316,500	310,500	----	627,000	49,000	72,850	----	121,850
1	Industrial	5,385	80,600	$17,200	103,185	1,200	23,250	$5,500	29,950
8	Outside	322,500	44,000	----	366,500	67,260	10,530	----	77,790

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside---Land	$369,485	$58,270	22.9	24.0	24.0	15.8	20
Improvements	596,750	147,000	24.5	24.0	24.5	24.6	25
Personal property	17,200	5,500	32.0	24.4	--	32.0	33
Total	$983,435	$210,770	22.0	22.9	24.0	21.4	--
Outside--Mineral rights							
Land	$322,500	$67,260	21.2	23.0	24.0	20.9	34
Improvements	44,000	10,530	21.5	20.4	26.4	23.9	21
Personal property	----	----	--	--	--	--	22
Total	$366,500	$77,790	21.4	22.5	25.0	21.2	33
Totals---Mineral rights							
Land	$691,985	$125,530	22.5	24.0	22.5	18.1	--
Improvements	640,750	157,530	24.7	23.6	24.8	24.6	--
Personal property	17,200	5,500	32.0	--	--	32.0	--
Total	$1,349,935	$288,560	21.9	22.5	21.9	21.4	25

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside ---Land	$969,290	1.12	34	.033
	5,684,495	6.52	20	.326
Improvements	21,467,745	24.63	25	.985
Personal property	5,402,330	6.20	33	.188
Total inside	$33,523,860	38.47		1.532
Outside--Mineral rights	$14,837,120	17.03	34	.501
Land	15,321,130	17.58	21	.837
Improvements	16,205,780	18.60	22	.846
Personal property	7,258,735	8.33	33	.253
Total outside	$53,622,765	61.53		2.437
Total county	**$87,146,625**	**100.00**		3.969
Totals ---Mineral rights	$15,806,410	----	24.89	----
Land	21,005,625	----	----	----
Improvements	37,673,525	----	23.61	----
Personal property	12,661,065	----	33	----
Total county	$87,146,625			25.19

RATIO COMPUTATION SUMMARY

Sonoma County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				Assessed Value			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
9	Commercial	$402,000	$525,000	----	$927,000	$78,410	$138,115	----	$216,525
19	Residential	30,550	186,600	----	217,150	8,225	47,255	----	55,480
8	Outside	99,800	14,300	----	114,100	26,300	4,130	----	30,430
1	Industrial (inside)	4,000	25,900	$35,500	65,400	1,000	6,400	$2,500	9,900

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$436,550	$87,635	25.8	26.2	25.9	20.1	25
Improvements	737,500	191,770	25.7	24.8	24	26.0	26
Personal property	35,500	2,500	7.0	7.0	7.0	7.0	35
Total	$1,209,550	$281,905	25.5	24.8	24	23.3	--
Outside—Mineral rights							
Land	$99,800	$26,300	28.4	27.0	28.4	26.4	27
Improvements	14,300	4,130	35.0	30.9	35.3	28.9	30
Personal property	----	----	--	--	--	--	35
Total	$114,100	$30,430	27.3	26.1	27.4	26.7	--
Totals—Mineral rights							
Land	$536,350	$113,935	26.3	26.2	26.4	21.2	--
Improvements	751,800	195,900	26.9	25.3	27.0	26.1	--
Personal property	35,500	2,500	7.0	7.0	7.0	7.0	--
Total	$1,323,650	$312,335	25.8	25.2	25.9	23.6	29

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$10,003,265	8.29	25	.331
Improvements	26,996,830	22.37	26	.860
Personal property	7,478,780	6.20	35	.177
Total inside	$44,478,875	36.86		1.368
Outside—Mineral rights				
Land	$25,723,595	21.52	27	.789
Improvements	37,430,650	31.02	30	1.034
Personal property	13,044,310	10.81	35	.308
Total outside	$76,198,555	63.14		2.131
Total county	**$120,677,430**	**100.01**		**34.99**
Totals—Mineral rights				
Land	$35,726,860	----	26.41	----
Improvements	64,427,480	----	28.18	----
Personal property	20,523,090	----	35.00	----
Total county	$120,677,430			28.57

RATIO COMPUTATION SUMMARY

Stanislaus County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
9	Commercial	$456,450	$137,250	----	$593,700	$54,830	$38,955	----	$93,785
26	Residential	36,520	201,030	----	237,550	5,965	37,305	----	43,270
8	Outside	176,450	52,150	----	228,600	44,825	11,520	----	56,345
3	Industrial	31,900	311,300	----	343,200	2,440	95,500	----	97,940

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$524,870	$63,235	16.1	13.7	10	12.0	14
Improvements	649,580	171,760	22.9	20.3	20.0	26.4	22
Personal property	----	----	--	--	--	--	25
Total	$1,174,450	$234,995	20.0	19.2	19.0	20.0	--
Outside—Mineral rights							
Land	$176,450	$44,825	23.6	22.0	22.0	24.2	23
Improvements	52,150	11,520	25.9	27.3	26.0	22.1	25
Personal property	----	----	--	--	--	--	25
Total	$228,600	$56,345	23.9	25.9	27	24.6	--
Totals—Mineral rights							
Land	$701,320	$108,060	17.4	16.7	10.0	15.4	--
Improvements	701,730	183,280	23.2	20.1	20.0	26.1	--
Personal property							
Total	$1,403,050	$291,340	20.7	19.0	19.0	20.8	23

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$5,793,700	4.46	14	.319
Improvements	23,721,550	18.28	22	.831
Personal property	8,256,185	6.36	25.0	.254
Total inside	$37,771,435	29.11		1.404
Outside—Mineral rights				
Land	$34,316,865	26.44	23	1.149
Improvements	38,010,710	29.29	25	1.171
Personal property	19,664,020	15.15	25.0	.606
Total outside	$91,991,595	70.89		2.926
Total county	**$129,763,030**	**100.00**		**43.30**
Totals—Mineral rights				
Land	$40,110,565	----	21.05	----
Improvements	61,732,260	----	23.76	----
Personal property	27,920,205	----	25	----
Total county	$129,763,030			**23.09**

RATIO COMPUTATION SUMMARY

Sutter County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
5	Commercial	$45,750	$199,750	----	$245,500	$9,770	$54,650	----	$64,420
11	Residential	7,620	88,630	----	96,250	2,270	26,150	----	28,420
1	Industrial	9,670	640,100	----	649,770	2,000	191,000	----	193,000
11	Outside	376,250	48,150	----	424,400	117,980	15,990	----	133,970

2. Appraisal ratio data

Class		*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$63,040	$14,040	28.4	29.7	28.4	22.3	28
	Improvements	$928,480	271,800	28.6	29.1	28.6	29.3	29
	Personal property	----	----	--	--	--	35	35
	Total	$991,520	$285,840	28.6	29.8	28.5	28.8	--
Outside	Mineral rights							
	Land	$376,250	$117,980	30.1	32.7	30.3	31.4	30
	Improvements	48,150	15,990	34.6	37.1	34.7	33.2	33
	Personal property	----	----	--	--	--	--	35
	Total	$424,400	$133,970	30.3	32.1	30.5	31.6	--
Totals	Mineral rights							
	Land	$439,290	$132,020	29.1	30.7	29.2	30.1	--
	Improvements	976,630	287,790	30.4	29.8	30.5	2.95	--
	Personal property							
	Total	$1,415,920	$419,810	29.3	30.3	29.3	29.6	31

3. County ratio computations

Class		*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$1,059,860	2.496	28	.0891
	Improvements	5,821,245	13.711	29	.4728
	Personal property	1,600,720	3.770	35	.1077
	Total inside	$8,481,825	19.977		.6706
Outside	Mineral rights				
	Land	$17,681,955	41.648	30	1.3882
	Improvements	8,896,220	20.954	33	.6350
	Personal property	7,396,395	17.421	35	.4977
	Total outside	$33,974,570	80.023		2.5209
Total county		**$42,456,395**			**3.0936**
Totals	Mineral rights				
	Land	$18,741,815	----	**29.87**	----
	Improvements	14,717,465	----	**31.29**	----
	Personal property	8,997,115	----	**35.00**	----
Total county		$42,456,395			**31.33**

RATIO COMPUTATION SUMMARY

Tehama County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	Use Type	Appraised Value				Assessed Value			
		Land	Improvements	Personal Property	Total	Land	Improvements	Personal Property	Total
3	Commercial	$28,750	$98,750	----	$127,500	$5,285	$24,425	----	$29,710
11	Residential	13,650	72,600	----	86,250	4,185	12,155	----	16,340
1	Industrial	11,475	174,800	$5,000	191,275	3,235	50,145	----	53,380
7	Outside	225,050	43,550	----	----	57,135	9,565	----	66,700

2. Appraisal ratio data

Class		Total Appraised Value	Total Assessed Value	Ratio Average	Ratio Median	Ratio Mode	Total Value Ratio	Ratio
Inside	Land	$53,875	$12,705	27.4	30.0	27.5	23.6	30
	Improvements	346,150	86,725	18.7	17.0	19.0	25.1	26
	Personal property	----	----	--	--	--	--	35
	Total	$400,025	$99,430	20.4	19.5	20.5	24.9	--
Outside	Mineral rights							
	Land	$225,050	$57,135	20.8	22.1	20.7	25.4	26
	Improvements	43,550	9,565	22.9	22.6	22.8	22.0	23
	Personal property	----	----	--	--	--	--	35
	Total	$268,600	$66,700	22.0	19.9	22.1	24.8	--
Totals	Mineral rights							
	Land	$278,925	$69,840	25.3	24.1	25.3	25.0	--
	Improvements	389,700	96,290	20.0	20.8	20.2	24.7	--
	Personal property							
	Total	$668,625	$166,130	20.9	19.6	21.0	24.8	28

3. County ratio computations

Class		Assessed Value 1951	Percent of Total	Ratio	Ratio Weighted
Inside	Land	$1,291,955	4.75	30	.1583
	Improvements	3,467,325	12.75	26	.4703
	Personal property	1,804,207	6.63	35	.1894
	Total inside	$6,563,487	24.13		.8380
Outside	Mineral rights				
	Land	$10,112,285	37.17	26	1.4296
	Improvements	4,312,305	15.85	23	.6891
	Personal property	6,213,209	22.85	35	.6528
	Total outside	$20,637,799	75.87		2.7715
Total county		$27,201,286	100.00	27.70	3.6095
Totals	Mineral rights				
	Land	$11,404,240	41.93	26.40	----
	Improvements	7,779,630	28.60	24.25	----
	Personal property	8,017,416	29.47	35.00	----
Total county		$27,201,286	100.00		27.70

RATIO COMPUTATION SUMMARY

Trinity County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	Use Type	Appraised Value Land	Appraised Value Improvements	Appraised Value Personal Property	Appraised Value Total	Assessed Value Land	Assessed Value Improvements	Assessed Value Personal Property	Assessed Value Total
2	Commercial	$9,800	$28,200	----	$38,000	$570	$6,500	----	$7,070
8	Residential	5,350	40,650	----	46,000	925	6,165	----	7,090
5	Outside	90,530	9,620	$4,700	104,850	12,265	2,000	$1,200	15,465

2. Appraisal ratio data

Class	Total Appraised Value	Total Assessed Value	Ratio Average	Ratio Median	Ratio Mode	Total Value Ratio	Ratio
Outside--Mineral rights							
Land	$105,680	$13,760	11.3	12.1	12.3	13.5	13
Improvements	78,470	14,665	26.2	13.2	18.9	20.8	26
Personal property	4,700	1,200	25.5	--	--	35.0	35
Total	$188,850	$29,625	14.0	15.7	14.0	14.7	--
Totals---Mineral rights							
Land	$105,680	$13,760	15.8	12.1	15.9	13.0	--
Improvements	78,470	14,665	19.3	15.2	19.3	18.7	--
Personal property	4,700	1,200	25.5	--	--	25.5	--
Total	$188,850	$29,625	15.3	15.6	15.3	15.7	17

3. County ratio computations

Class	Assessed Value 1951	Percent of Total	Ratio	Ratio Weighted
Outside --Mineral rights				
Land	$3,647,135	59.397	13	4.57
Improvements	997,130	16.239	26	.62
Personal property	1,496,000	24.364	35	.70
Total county	**$6,140,265**	**100.00**	16.99	5.89
Totals---Mineral rights				
Land	$3,647,135	----	13	----
Improvements	997,130	----	26	----
Personal property	1,496,000	----	35	----
Total county	$6,140,265			16.99

RATIO COMPUTATION SUMMARY **Tulare County**

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	Use Type	Appraised Value Land	Appraised Value Improvements	Appraised Value Personal Property	Appraised Value Total	Assessed Value Land	Assessed Value Improvements	Assessed Value Personal Property	Assessed Value Total
5	Commercial	$107,000	$108,500	----	$215,500	$26,085	$22,650	----	$48,735
2	Industrial	7,000	200,450	$38,650	246,100	2,220	28,500	$5,180	35,900
20	Residential	25,900	144,900	----	170,800	5,265	36,475	----	41,740
8	Agricultural	124,300	39,950	----	164,250	16,060	6,540	----	22,600
	Mineral rights	4,810,500	----	----	4,810,500	1,462,430	----	----	1,462,430

2. Appraisal ratio data

Class		Total Appraised Value	Total Assessed Value	Ratio Average	Ratio Median	Ratio Mode	Total Value Ratio	Ratio
Inside	Land	$138,900	$33,310	21.7	20.0	20.0	23.4	22
	Improvements	426,750	82,305	23.7	24.0	20.0	19.3	24
	Personal property	38,650	5,180	--	--	--	13.4	30
	Total	$604,300	$120,795	24.0	23.0	21.0	20.0	--
Outside	Mineral rights	$4,810,500	$1,462,430	--	--	--	30.4	31
	Land	125,300	16,320	16.8	17.0	16.8	13.0	17
	Improvements	67,050	11,860	22.4	23.0	22.4	17.7	22
	Personal property	----	----	--	--	--	--	30
	Total	$5,002,850	$1,490,610				29.8	
Totals	Mineral rights	$4,810,500	$1,462,430	--	--	--	30.4	--
	Land	264,200	49,630	20.3	20.0	20.0	18.8	--
	Improvements	493,800	94,165	23.6	24.0	15.0	19.1	--
	Personal property	38,650	5,180	--	--	--	25.0	--
	Total	$5,607,150	$1,611,405				28.7	

3. County ratio computations

Class		Assessed Value 1951	Percent of Total	Ratio	Ratio Weighted
Inside	Land	$7,473,125	5.03	22	.229
	Improvements	27,273,550	18.36	24	.765
	Personal property	9,909,515	6.67	30	.222
	Total inside	$44,656,190	30.06		1.216
Outside	Mineral rights	$1,462,430	0.98	31	.032
	Land	42,676,620	28.73	17	1.690
	Improvements	39,972,630	26.91	22	1.223
	Personal property	19,788,190	13.32	30	.444
	Total outside	$103,899,870	69.94		3.389
Total county		**$148,556,060**	**100.00**		4.605
Totals	Mineral rights	$1,462,430	----	----	----
	Land	50,149,745	----	17.81	----
	Improvements	67,246,180	----	22.77	----
	Personal property	29,697,705	----	30.00	----
Total county		$148,556,060			21.71

RATIO COMPUTATION SUMMARY

Tuolumne County

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				*Assessed Value*			
Number of Appraisals	*Use Type*	*Land*	*Improve-ments*	*Personal Property*	*Total*	*Land*	*Improve-ments*	*Personal Property*	*Total*
3	Commercial	$28,700	$82,800	----	$111,500	$7,720	$27,140	----	$34,860
9	Residential	8,850	70,500	----	79,350	3,030	20,870	----	23,900
10	Outside	105,690	46,500	$14,000	166,190	31,970	15,820	$5,340	53,130

2. Appraisal ratio data

Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside—Land	$37,550	$10,750	35.1	29.4	35.2	28.6	31
Improvements	153,300	48,010	27.6	26.4	27.6	31.3	30
Personal property	----	----	--	--	--	--	35
Total	$190,850	$58,760	29.0	29.8	28.8	30.8	
Outside—Mineral rights							
Land	$105,690	$31,970	27.4	27.5	27.5	30.2	28
Improvements	46,500	15,820	34.4	34.1	34.3	34.0	34
Personal property	14,000	5,340	38.1	--	--	38.1	35
Total	$166,190	$53,130	29.6	30.9	29.7	32.0	
Totals—Mineral rights							
Land	$143,240	$42,720	31.6	26.4	31.7	29.8	--
Improvements	199,800	63,830	29.1	30.0	29.1	31.9	--
Personal property	14,000	5,340	38.1	--	--	38.1	--
Total	$357,040	$111,890	29.3	29.7	29.2	31.3	32

3. County ratio computations

Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside—Land	$907,225	5.41	31.0	.1745
Improvements	2,161,400	12.89	30.0	.4296
Personal property	368,265	2.20	35.0	.0628
Total inside	$3,436,890	20.50		.6669
Outside—Mineral rights				
Land	$4,600,165	27.43	28.0	.9795
Improvements	6,515,985	38.86	34.0	1.1429
Personal property	2,215,835	13.21	35.0	.3774
Total outside	$13,331,985	79.50		2.4998
Total county	$16,768,875	100.00	31.58	3.1667
Totals—Mineral rights				
Land	$5,507,390	----	28.45	----
Improvements	8,677,385	----	32.91	----
Personal property	2,584,100	----	35.00	----
Total county	$16,768,875			31.58

Ventura County

RATIO COMPUTATION SUMMARY

Dates Made 1950-1951

1. Appraisal data

		Appraised Value				Assessed Value			
Number of Appraisals	*Use Type*	*Land*	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
12	Commercial	$276,500	$230,000	----	$506,500	$45,090	$31,700	----	$76,790
2	Industrial	39,000	1,016,200	$184,800	1,240,000	6,500	182,560	$38,990	228,050
35	Residential	83,800	329,200	----	413,000	11,930	51,130	----	63,060
6	Agricultural	204,700	163,350	----	368,050	38,370	34,680	----	73,050
	Mineral Rights	385,794,000	----	----	385,794,000	126,988,690	----	----	126,988,690

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$397,300	$63,220	15.8	16.0	15.0	15.9	16
	Improvements	1,030,150	183,120	15.1	15.0	15.0	17.8	17
	Personal property	184,800	38,990	--	--	--	21.1	40
	Total	$1,612,250	$285,330	15.4	16.0	16.0	17.7	
Outside	Mineral rights	$385,794,000	$126,988,690	--	--	--	32.91	33
	Land	206,700	38,670	17.6	15.0	17.6	18.7	19
	Improvements	708,600	116,950	22.8	19.0	22.8	16.5	20
	Personal property	----	----	--	--	--	--	40
	Total	$386,709,300	$127,144,310	18.6	17.0	18.6	17.0 32.87	--
Totals	Mineral rights	$385,794,000	$126,988,690	--	--	--	32.91	--
	Land	604,000	101,390	16.0	15.0	15.0	16.9	--
	Improvements	1,738,750	300,070	16.2	15.0	15.0	17.3	--
	Personal property	184,800	38,990	--	--	--	25.0	--
	Total	$388,321,550	$127,429,640	15.9	16.0	16.0	32.81	25

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$5,670 8,678,010	.002 3.57	33 16	.001 .223
	Improvements	21,679,850	8.92	17	.525
	Personal property	7,802,530	3.21	40	.080
	Total inside	$38,166,060	15.40		.828
Outside	Mineral rights	$131,442,070	54.11	33	1.640
	Land	31,618,610	13.02	19	.685
	Improvements	30,459,560	12.54	20	.627
	Personal property	11,245,330	4.63	40	.115 3.067
	Total outside	$204,765,570	84.30		
Total county		**$242,931,630**	**100.00**	25.67	3.895
Totals	Mineral rights	$131,447,740	65.40	27.75	----
	Land	40,296,620			
	Improvements	17,744,360 52,139,410	29.57	18.63	----
	Personal property	19,047,860	5.03	40.00	----
Total county		**$242,931,630**	**100.00**		25.67

RATIO COMPUTATION SUMMARY

Yolo County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	*Use Type*	*Appraised Value*				*Assessed Value*			
		Land	*Improvements*	*Personal Property*	*Total*	*Land*	*Improvements*	*Personal Property*	*Total*
3	Commercial	$197,750	$953,250	----	$1,151,000	$40,910	$206,390	----	$247,300
10	Residential	9,500	71,000	----	80,500	2,690	16,860	----	19,550
7	Farms	184,000	31,000	----	215,000	40,320	6,860	----	46,285
2	Industrial	8,500	77,400	$36,300	122,200	1,900	9,930	$16,500	28,330

2. Appraisal ratio data

	Class	*Total Appraised Value*	*Total Assessed Value*	*Ratio Average*	*Ratio Median*	*Ratio Mode*	*Total Value Ratio*	*Ratio*
Inside	Land	$21,750	$5,240	29.2	28.9	29.0	24.1	29
	Improvements	94,250	19,250	20.7	23.3	20.7	20.4	21
	Personal property	----	----	--	--	--	--	40
	Total	$116,000	$24,490	22.1	22.7	22.1	21.1	--
Outside	Mineral rights							
	Land	$378,000	$80,480	22.1	23.1	23.0	21.3	23
	Improvements	1,038,400	219,995	18.1	22.2	18.1	21.2	21
	Personal property	36,300	16,500	44.6	44.6	44.6	45.5	40
	Total	$1,452,700	$316,975	21.4	21.7	21.4	21.8	--
Totals	Mineral rights							
	Land	$399,750	$85,720	25.7	23.1	23.0	21.4	--
	Improvements	1,132,650	239,245	18.7	22.0	19.6	21.1	--
	Personal property	36,300	16,500	44.6	44.6	44.6	45.5	--
	Total	$1,568,700	$314,465	21.7	21.6	21.7	21.8	25

3. County ratio computations

	Class	*Assessed Value 1951*	*Percent of Total*	*Ratio*	*Ratio Weighted*
Inside	Land	$2,167,620	3.78	29	.1303
	Improvements	9,005,385	15.72	21	.7486
	Personal property	3,501,344	6.11	40	.1527
	Total inside	$14,674,349	25.61		1.0316
Outside	Mineral rights				
	Land	$21,987,830	38.38	23	1.6687
	Improvements	10,233,075	17.86	21	.8505
	Personal property	10,398,608	18.15	40	.4538
	Total outside	$42,619,513	74.39		2.9730
Total county		**$57,293,862**	**100.00**		4.0046
Totals	Mineral rights				
	Land	$24,155,450	----	23.44	----
	Improvements	19,238,460	----	21.00	----
	Personal property	13,899,952	----	40.00	----
Total county		$57,293,862			24.97

RATIO COMPUTATION SUMMARY

Yuba County

Dates Made 1950-1951

1. Appraisal data

Number of Appraisals	Use Type	Appraised Value				Assessed Value			
		Land	Improvements	Personal Property	Total	Land	Improvements	Personal Property	Total
3	Commercial	$152,000	$108,000	----	$260,000	$34,100	$17,515	----	$51,615
11	Residential	17,950	135,650	----	153,600	6,085	31,900	----	37,985
12	Outside	253,450	398,500	$10,750	662,700	80,045	97,975	$1,650	179,670

2. Appraisal ratio data

Class	Total Appraised Value	Total Assessed Value	Ratio Average	Ratio Median	Ratio Mode	Total Value Ratio	Ratio
Inside—Land	$169,950	$40,185	30.0	28.3	30.1	23.6	31
Improvements	243,650	49,415	23.7	24.3	23.8	20.3	22
Personal property	----	----	--	--	--	35	35
Total	$413,600	$89,600	27.2	24.7	27.3	21.7	--
Outside—Mineral rights							
Land	$253,450	$80,045	30.3	34.4	30.3	31.6	30
Improvements	398,500	97,975	28.3	25.8	28.4	24.6	28
Personal property	10,750	1,650	15.6	15.6	15.5	15.3	35
Total	$655,200	$179,670	29.9	28.6	29.9	27.4	--
Totals—Mineral rights							
Land	$453,400	$120,230	30.1	28.7	30.2	28.4	--
Improvements	642,150	147,390	25.7	24.7	25.8	23.0	--
Personal property	10,750	1,650	15.6	15.6	15.5	15.3	--
Total	$1,076,300	$269,270	28.4	26.1	28.5	25.0	28

3. County ratio computations

Class	Assessed Value 1951	Percent of Total	Ratio	Ratio Weighted
Inside—Land	$2,580,675	9.78	31	.315
Improvements	6,345,845	24.05	22	1.093
Personal property	2,298,495	8.71	35	.249
Total inside	$11,225,015	42.54		1.657
Outside—Mineral rights				
Land	$6,559,300	24.85	30	.828
Improvements	5,940,700	22.51	28	.804
Personal property	2,665,285	10.10	35	.289
Total outside	$15,165,285	57.46		1.921
Total county	**$26,390,300**	**100.00**		3.578
Totals—Mineral rights				
Land	$9,139,975	----	30.28	----
Improvements	12,286,545	----	24.54	----
Personal property	4,963,780	----	35.00	----
Total county	$26,390,300			27.95

SOURCE: Reproduced from work sheets of the Division of Assessment Standards of the State Board of Equalization.

APPENDIX F

Ratios of Assessed Value to Appraised Value for Sample Parcels of Real Property in 55 Counties, Based on Appraisals by the State Board of Equalization for 1951 and by the Committee for 1952

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Alameda County							
1	$125,000	$24,000	19.20	$111,000	$23,900	21.53	88.00
2	38,000	11,950	31.45	45,000	11,950	26.56	118.42
3	260,000	20,700	7.96	65,000	16,500	25.38	25.00
4	45,800	9,400	20.52	40,000	9,400	23.50	87.34
5	2,500,000	713,700	28.55	2,000,000	713,700	35.68	80.00
6	1,500,000	937,800	62.52	2,900,000	935,800	32.27	193.33
7	50,000	13,500	27.00	67,000	13,500	20.15	134.00
8	90,000	24,900	27.67	90,000	24,900	27.67	100.00
9	275,000	122,150	44.42	433,335	122,150	28.19	157.58
10	29,838	11,150	37.37	9,500	2,000	21.05	31.84
11	6,260	1,750	27.96	10,500	1,750	16.67	167.73
12	67,520	9,550	14.14	48,500	8,800	18.14	71.83
13	10,400	1,050	10.10	5,700	1,050	18.42	54.81
14	29,500	2,625	8.90	24,000	2,625	10.94	81.36
15	8,750	1,200	13.71	8,250	1,200	14.54	94.28
16	9,500	1,300	13.68	8,000	1,300	16.25	84.21
17	10,000	1,950	19.50	10,500	1,950	18.57	105.00
18	8,500	1,450	17.06	7,000	1,450	20.71	82.35
19	10,250	2,400	23.41	8,750	2,400	27.43	85.36
20	17,500	3,250	18.57	17,500	3,250	18.57	100.00
21	21,000	4,100	19.52	20,500	4,100	20.00	97.62
22	17,500	2,900	16.57	15,500	2,900	18.71	88.57
23	6,500	1,050	16.15	5,500	1,050	19.09	84.62
24	7,250	950	13.10	6,000	950	15.83	82.76
25	12,500	2,025	16.20	11,500	2,025	17.61	92.00
26	12,750	1,675	13.14	8,750	1,675	19.14	68.63
27	16,000	3,275	20.47	16,500	3,275	19.85	103.12
28	78,900	16,225	20.56	72,500	16,225	22.38	91.89
29	14,500	3,975	27.41	15,500	3,875	25.00	106.90
30	8,500	1,325	15.59	7,250	1,325	18.28	85.29
31	27,500	3,100	11.27	24,000	3,100	12.92	87.27
32	17,250	2,725	15.80	16,000	2,725	17.03	92.75
33	90,000	14,750	16.39	99,000	14,750	14.90	110.00
34	24,500	4,600	18.78	23,750	4,600	19.37	96.94
35	9,450	1,800	19.05	8,000	1,800	22.50	84.66
36	10,500	2,075	19.76	9,500	2,075	21.84	90.48
37	8,250	2,000	24.24	8,600	2,000	23.26	104.24
38	9,500	1,900	20.00	9,500	1,900	20.00	100.00
39	10,500	1,375	13.10	9,250	1,375	14.86	88.10
40	17,500	2,700	15.43	15,000	2,700	18.00	85.71
41	18,000	2,750	15.28	16,000	2,750	17.19	88.89
42	18,250	2,700	14.79	16,500	2,700	16.36	90.41
43	12,000	1,800	15.00	12,000	1,800	15.00	100.00
44	3,600	500	13.89	4,250	500	11.76	118.06
45	10,000	1,475	14.75	9,500	1,475	15.53	95.00

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Alameda County—Continued							
46	$35,000	$7,350	21.00	$36,000	$7,350	20.42	102.86
47	16,500	2,900	17.58	16,500	2,900	17.58	100.00
48	138,000	17,150	12.43	72,500	17,150	23.66	52.54
49	12,500	1,675	13.40	11,000	1,675	15.23	88.00
50	18,000	2,200	12.22	14,000	2,200	15.71	77.78
51	8,000	1,350	16.86	7,000	1,350	19.28	87.50
52	7,000	1,225	17.50	7,200	1,225	17.01	102.86
53	11,250	1,850	16.44	10,000	1,850	18.50	88.89
54	8,250	1,200	14.55	8,000	1,200	15.00	96.97
55	13,200	1,925	14.58	11,750	1,925	16.38	89.02
56	13,500	1,975	14.63	12,300	1,975	16.06	91.11
57	25,000	4,800	19.20	18,500	4,800	25.94	74.00
58	17,000	3,100	18.24	16,000	3,100	19.38	94.12
59	13,750	2,200	16.00	10,500	2,200	20.95	76.36
60	14,250	2,725	19.12	13,250	2,725	20.57	92.98
61	13,000	2,500	19.23	12,500	2,500	20.00	96.15
62	10,200	1,825	17.89	8,200	1,775	21.65	80.39
63	11,500	2,100	18.26	10,500	2,100	20.00	91.30
64	9,500	1,775	18.68	8,200	1,775	21.65	86.32
65	165,000	63,100	38.24	233,700	52,000	22.25	141.67
Totals	$6,134,418	$2,124,450	34.63	$6,907,485	$2,097,000	30.36	112.60
Alpine County							
1	$37,500	$95	.25	$7,500	$50	0.67	20.00
2	29,500	7,425	25.17	25,000	14,100	56.40	84.74
3	5,000	3,260	65.20	6,500	600	9.23	130.00
4	6,500	1,605	24.69	5,000	900	18.00	76.92
5	7,500	1,850	24.67	3,800	650	17.10	50.67
6	300	110	36.67	450	100	22.22	150.00
Totals	$86,300	$14,345	16.62	$48,250	$16,400	33.99	55.91
Butte County							
1	$120,000	$26,365	21.97	$130,000	$26,365	20.28	108.33
2	35,000	10,595	30.27	50,000	10,595	21.19	142.86
3	12,500	2,135	17.08	10,000	2,135	21.35	80.00
4	8,750	1,610	18.40	9,000	1,610	17.89	102.86
5	11,500	1,890	16.43	10,500	1,890	18.00	91.30
6	15,000	2,040	13.60	11,500	2,040	17.74	76.67
7	50,000	9,225	18.45	49,200	9,225	18.75	98.40
8	155,000	28,265	18.24	188,000	28,265	15.03	121.29
9	35,000	8,965	25.61	34,500	8,965	25.98	98.57
10	75,000	10,575	14.10	78,500	10,575	13.47	104.67
11	9,750	1,915	19.64	10,000	1,915	19.15	102.56
12	18,000	4,415	24.53	19,500	4,415	22.64	108.33
13	13,000	2,270	17.46	11,500	2,270	19.74	88.46
14	8,500	1,445	17.00	7,500	1,445	19.27	88.24
15	12,500	1,930	15.44	10,500	1,930	18.38	84.00
16	18,000	4,365	24.25	24,500	4,365	17.82	136.11
17	27,500	4,490	16.33	16,000	3,890	24.31	58.18
18	80,000	21,905	27.38	95,000	21,905	23.06	118.75
19	22,500	3,885	17.27	18,750	4,185	22.32	83.33
20	11,000	3,550	32.27	16,000	3,890	29.54	100.00
21	10,000	940	9.40	8,000	1,060	13.25	80.00
22	20,000	3,875	19.38	17,200	3,775	21.33	88.50
23	30,000	9,860	32.87	22,000	7,580	34.45	73.33
Totals	$798,500	$166,510	20.85	$843,150	$163,650	19.41	105.59

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Calaveras County							
1	$42,300	$15,025	35.52	$65,000	$17,085	26.28	153.66
2	40,000	12,975	32.44	56,000	15,055	26.88	140.00
3	24,000	9,595	39.98	27,500	7,655	27.84	114.58
4	7,000	2,250	32.14	8,500	2,250	26.47	121.43
5	11,000	2,930	26.34	11,500	2,880	25.04	104.55
6	9,000	2,145	23.83	8,500	2,145	25.24	94.44
7	4,000	1,600	40.00	4,700	1,600	34.04	117.50
8	30,000	9,020	30.07	44,000	9,020	20.50	146.67
9	14,000	3,200	22.86	13,000	3,200	24.62	92.86
10	1,500	320	21.33	1,400	320	22.86	93.33
11	8,500	2,975	35.00	10,500	2,975	28.33	123.53
12	8,750	2,750	31.43	8,000	2,600	32.50	91.43
13	9,500	2,850	30.00	9,250	2,730	29.51	97.37
14	7,500	2,200	29.33	5,500	2,200	40.00	73.33
15	10,000	3,755	37.55	13,000	3,755	28.88	130.00
Totals	$227,050	$73,590	32.41	$286,350	$75,470	26.36	126.12
Colusa County							
1	$8,500	$4,810	56.59	$20,000	$4,635	23.18	235.29
2	8,000	2,680	33.50	10,750	2,490	23.16	134.38
3	14,000	4,380	31.29	20,000	4,340	21.70	142.86
4	7,750	1,635	21.10	6,750	1,635	24.22	87.10
5	8,000	1,940	24.25	7,000	1,645	23.50	87.50
6	7,750	2,040	26.32	8,000	2,040	25.50	103.23
7	75,000	10,600	14.13	27,500	10,600	38.54	36.67
8	38,000	7,220	19.00	22,500	7,220	32.09	59.21
9	9,500	2,315	24.37	8,000	2,315	28.94	84.21
10	37,500	10,140	27.04	37,500	10,140	27.04	100.00
11	350	35	10.00	300	35	11.67	85.71
12	350	35	10.00	300	35	11.67	85.71
13	85,000	15,970	18.79	80,500	15,970	19.84	94.70
14	32,000	5,115	15.98	23,000	5,115	22.24	71.68
15	65,000	16,400	25.23	60,000	15,850	26.42	92.31
16	14,000	1,950	13.93	9,000	1,950	21.67	64.28
17	22,500	2,600	11.56	13,500	2,600	19.26	60.00
18	70,000	8,820	12.60	28,000	8,820	31.50	40.00
Totals	$503,200	$98,685	19.61	$382,600	$97,435	25.47	76.03
Contra Costa County							
1	$7,000	$1,500	21.43	$8,250	$1,500	18.18	117.86
2	12,000	2,380	19.83	12,000	23.80	19.83	100.00
3	9,000	2,150	23.89	9,250	2,150	23.24	102.78
4	11,600	2,180	18.79	10,000	2,180	21.80	86.21
5	16,000	2,810	17.56	13,000	2,810	21.62	81.25
6	17,950	3,420	19.05	16,800	3,420	20.36	93.59
7	16,500	4,580	27.76	19,500	4,580	23.49	118.18
8	16,500	3,540	21.45	17,000	3,540	20.82	103.03
9	19,000	3,540	18.63	16,500	3,540	21.45	86.84
10	13,800	2,300	16.67	11,500	2,300	20.00	83.33
11	18,750	3,650	19.47	18,000	3,650	20.28	96.00
12	10,750	2,140	19.91	10,250	2,140	20.88	95.35
13	55,000	9,050	16.45	55,000	3,050	16.45	100.00
14	17,000	4,420	26.00	23,500	4,420	18.81	138.24
15	63,000	16,050	25.48	63,500	16,050	25.28	100.79
16	12,000	2,450	20.42	12,000	2.450	20.42	100.00
17	10,750	1,910	17.77	9,500	1,880	19.79	88.37
18	57,500	10,680	18.57	56,000	10,680	19.07	97.39
19	98,750	16,430	16.64	77,500	16,430	21.20	78.48
20	75,000	18,500	24.67	110,000	18,500	16.82	146.67

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Contra Costa County—Continued							
21 ______	$70,000	$14,200	20.29	$90,000	$14,200	15.78	128.57
22 ______	95,000	24,000	25.26	85,000	24,000	28.24	89.47
23 ______	10,500	2,190	20.86	7,500	2,190	29.20	71.43
24 ______	8,750	1,560	17.83	7,500	1,560	20.80	85.71
25 ______	7,500	1,660	22.13	7,000	1,660	23.71	93.33
26 ______	8,000	1,730	21.63	7,750	1,730	22.32	96.88
27 ______	8,700	1,770	20.34	8,000	1,770	22.12	91.95
28 ______	11,550	2,440	21.13	10,250	2,440	23.80	88.74
29 ______	10,800	2,680	24.81	12,000	2,680	22.33	111.11
30 ______	11,700	2,280	19.49	9,800	2,280	23.26	83.76
31 ______	9,850	2,470	25.08	8,300	2,470	29.76	84.26
32 ______	10,750	1,850	17.21	9,500	1,850	19.47	88.37
33 ______	18,300	4,185	22.87	19,250	4,185	21.74	105.19
34 ______	35,560	6,410	18.03	28,500	6,410	22.49	80.15
35 ______	18,300	4,500	24.59	16,500	4,500	27.27	90.16
36 ______	23,300	9,320	40.00	26,000	9,320	35.85	111.59
37 ______	65,000	9,980	15.35	57,000	9,980	17.51	87.69
38 ______	80,000	12,880	16.10	73,000	12,880	17.64	91.25
39 ______	150,000	32,070	21.38	144,500	32,070	22.19	96.33
Totals _____	$1,211,410	$251,855	20.79	$1,196,400	$251,825	21.05	98.76
Del Norte County							
1 ______	$40,000	$13,800	34.50	$50,000	$13,800	27.60	125.00
2 ______	6,500	1,800	27.69	15,000	1,800	12.00	230.77
3 ______	7,600	1,700	22.37	10,000	1,700	17.00	131.58
4 ______	5,000	1,000	20.00	5,800	1,000	17.24	116.00
5 ______	5,500	1,200	21.82	7,000	1,200	17.14	127.27
6 ______	5,200	1,500	28.85	5,500	1,300	23.64	105.77
7 ______	4,700	1,300	27.66	6,500	1,300	20.00	138.30
8 ______	4,800	1,100	22.92	7,000	1,100	15.71	145.83
9 ______	388,360	49,500	12.75	161,500	47,110	29.17	41.59
10 ______	485,910	73,730	15.17	636,000	127,560	20.06	130.89
11 ______	170,810	26,340	15.42	242,400	48,720	20.10	141.91
12 ______	35,000	9,700	27.71	29,000	9,700	33.45	82.86
13 ______	16,000	4,120	25.75	17,500	3,520	20.11	109.38
14 ______	36,000	8,545	23.74	28,000	8,545	30.52	77.78
15 ______	11,500	1,850	16.09	28,500	1,850	6.49	247.83
Totals _____	$1,222,880	$197,185	16.12	$1,249,700	$270,205	21.62	102.19
El Dorado County							
1 ______	$7,500	$2,400	32.00	$7,500	$2,400	32.00	100.00
2 ______	13,500	3,350	24.81	11,500	3,250	28.26	85.19
3 ______	6,500	2,200	33.85	6,500	2,200	33.85	100.00
4 ______	9,500	2,800	29.47	18,000	2,800	15.56	189.47
5 ______	13,750	2,850	20.73	11,000	2,800	25.45	80.00
6 ______	11,000	2,800	25.45	8,500	2,800	32.94	77.27
7 ______	14,500	3,650	25.17	12,000	3,650	30.42	82.76
8 ______	65,000	9,250	14.23	90,000	9,250	10.28	138.46
9 ______	30,000	13,500	45.00	42,500	13,500	31.76	141.67
10 ______	45,000	9,800	21.78	42,500	9,800	23.06	94.44
Totals _____	$216,250	$52,600	24.32	$250,000	$52,450	20.98	115.61

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Fresno County							
1 ______	$210,000	$56,360	26.84	$163,000	$56,360	34.58	77.62
2 ______	80,000	23,460	29.33	73,000	23,460	32.14	91.25
3 ______	150,000	56,830	37.89	200,000	56,830	28.42	133.33
4 ______	800,000	323,500	40.44	1,150,000	333,400	28.99	143.75
5 ______	225,000	131,060	58.25	400,000	135,080	33.77	177.78
6 ______	110,000	38,060	34.60	148,000	38,060	25.72	134.55
7 ______	90,000	35,310	39.23	115,000	35,310	30.70	127.78
8 ______	125,000	80,855	64.68	207,550	51,255	24.70	166.04
9 ______	35,000	7,310	20.89	30,500	7,310	23.97	87.14
10 ______	9,250	1,900	20.54	9,000	1,840	20.44	97.30
11 ______	13,500	2,970	22.00	12,500	2,855	22.84	92.59
12 ______	5,750	1,080	18.78	5,600	1,080	19.29	97.39
13 ______	4,500	930	20.67	4,250	900	21.18	94.44
14 ______	13,000	2,440	18.77	11,200	2,390	21.34	86.15
15 ______	12,500	2,740	21.92	13,500	2,740	20.30	108.00
16 ______	16,000	2,955	18.47	15,500	2,895	18.68	96.88
17 ______	145,000	17,930	12.37	81,000	17,930	22.14	55.86
18 ______	14,600	3,390	23.22	15,000	2,400	16.00	102.74
19 ______	8,600	1,620	18.84	8,750	1,620	18.51	101.74
20 ______	8,000	1,250	15.63	6,250	1,250	20.00	78.12
21 ______	9,700	1,765	18.20	9,500	1,765	18.58	97.94
22 ______	6,000	1,290	21.50	5,000	1,290	25.80	83.33
23 ______	9,000	1,440	16.00	6,750	1,350	20.00	75.00
24 ______	18,000	3,470	19.28	16,500	3,245	19.67	91.67
25 ______	7,500	1,000	13.33	6,000	1,000	16.67	80.00
26 ______	4,250	540	12.71	4,000	540	13.50	94.12
27 ______	7,250	1,250	17.24	6,000	1,250	20.83	82.76
28 ______	5,000	600	12.00	4,500	600	13.34	90.00
29 ______	9,500	1,760	18.53	8,500	1,760	20.71	89.47
30 ______	6,250	1,000	16.00	7,500	1,000	13.34	120.00
31 ______	9,500	2,045	21.53	12,000	2,045	17.04	126.32
32 ______	3,250	450	13.85	3,500	450	12.86	107.69
33 ______	4,500	100	13.33	5,700	600	10.53	126.67
34 ______	5,000	1,400	28.00	7,500	1,400	18.67	150.00
35 ______	10,500	2,680	25.52	12,500	2,680	21.44	119.05
36 ______	7,600	1,390	18.29	8,500	1,390	16.35	111.84
37 ______	8,600	1,820	21.16	9,000	1,820	20.22	104.65
38 ______	16,000	2,460	15.38	14,000	2,240	16.00	87.50
39 ______	2,800	495	17.68	3,000	495	16.50	107.14
40 ______	4,000	430	10.75	2,000	430	21.50	50.00
41 ______	8,900	1,580	17.75	8,200	1,580	19.27	92.13
42 ______	7,500	1,370	18.27	7,500	1,370	18.27	100.00
43 ______	11,962	2,795	23.37	8,000	2,790	34.88	66.88
44 ______	44,275	19,920	44.99	52,000	19,920	38.31	117.45
45 ______	55,000	16,240	29.53	45,000	15,490	34.42	81.82
46 ______	19,250	1,750	9.09	7,000	1,750	25.00	36.36
47 ______	6,800	4,080	60.00	8,500	4,080	48.00	125.00
48 ______	11,000	4,435	40.32	14,500	4,335	29.90	131.82
49 ______	35,000	8,545	24.41	36,000	8,545	23.74	102.86
50 ______	85,000	14,355	16.89	50,000	14,355	28.67	58.82
Totals _____	$2,514,587	$894,905	35.59	$3,058,250	$876,530	28.66	121.62

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Glenn County							
1	$7,500	$2,890	38.53	$10,500	$2,890	27.52	140.00
2	7,000	2,160	30.86	8,750	2,160	24.69	125.00
3	350	50	14.29	400	50	12.50	114.29
4	4,750	930	19.58	5,000	930	18.60	105.26
5	25,000	11,760	47.04	50,000	11,760	23.52	200.00
6	12,500	4,430	35.44	22,500	4,430	19.69	180.00
7	42,500	21,710	51.08	60,250	21,710	36.03	141.76
8	24,000	5,680	23.67	20,000	5,680	28.40	83.33
9	28,000	7,910	28.25	27,750	6,205	22.36	99.11
10	15,000	2,200	14.67	11,500	2,200	19.13	76.67
11	60,500	7,200	11.90	22,250	7,200	32.36	36.78
Totals	$227,100	$66,920	29.47	$238,900	$65,215	27.30	105.20
Humboldt County							
1	$10,500	$1,840	17.52	$1,000	$160	16.00	9.52
2	10,500	1,800	17.14	9,000	1,800	20.00	85.71
3	10,500	1,570	14.95	7,900	1,570	19.87	75.24
4	12,500	1,970	15.76	10,500	1,360	12.95	84.00
5	12,500	1,760	14.08	9,500	1,360	14.32	76.00
6	13,600	1,150	8.46	8,000	1,150	14.38	58.82
7	221,000	49,520	22.41	180,000	49,520	27.51	81.45
8	337,000	92,280	27.38	312,500	67,280	21.53	92.73
9	137,500	24,720	17.98	127,500	24,720	19.39	92.73
10	37,000	6,600	17.84	46,000	6,600	14.35	124.32
11	35,000	5,610	16.03	32,400	5,610	17.31	92.57
12	10,300	1,840	17.86	9,000	1,840	20.44	87.38
13	12.300	1,700	13.82	11,250	1,700	15.11	91.46
14	11,500	1,850	16.09	8,500	1,850	21.76	73.91
15	16,000	1,400	8.75	10,500	1,400	13.33	65.62
16	9,500	1,620	17.05	8,500	1,620	19.06	89.47
17	11,000	2,380	21.64	11,000	2,380	21.64	100.00
18	13,750	2,780	20.22	13,000	2,780	21.38	94.54
19	10,500	1,660	15.81	9,200	1,660	18.04	87.62
Totals	$932,450	$204,050	21.88	$825,250	$176,360	21.37	88.50
Imperial County							
1	$65,000	$19,350	29.77	$95,000	$19,350	20.37	146.15
2	35,000	4,790	13.69	37,000	4,790	12.94	105.71
3	8,750	2,065	23.60	8,600	2,065	24.01	98.28
4	3,200	415	12.97	2,300	415	18.04	71.88
5	4,600	565	12.28	3,800	565	14.87	82.61
6	7,250	1,650	22.76	4,000	1,540	38.50	55.17
7	10,000	2,155	21.55	10,500	2,155	20.52	105.00
8	30.000	8,405	28.02	30,000	8,405	28.02	100.00
9	70,000	17,645	25.21	85,000	15,645	18.40	121.43
10	170,000	43,900	25.82	265,000	43,900	16.57	155.88
11	125,000	28,705	22.96	87,500	28,705	32.80	70.00
12	3,800	1,085	28.55	4,000	1,085	27.12	105.26
13	14,000	3,405	24.32	13,000	3,405	26.19	92.86
14	36,000	2,040	5.67	16,500	1,640	9.94	45.83
15	33,750	4,500	13.33	9,000	4,500	50.00	26.67
16	27,300	2,340	8.57	3,100	2,340	75.48	11.36
17	30,000	3,375	11.25	14,900	2,800	18.79	49.67
18	64,000	7,800	12.19	24,750	7,800	31.52	38.67
19	10,000	1,570	15.70	5,750	1,520	26.43	57.50
20	15,600	2,280	14.62	6,800	1,950	28.68	43.59
21	6,500	3,100	47.69	8,200	3,100	37.80	126.15
22	4,500	890	19.78	4,500	1,140	25.33	100.00
23	8,500	3,200	37.65	12,250	3,200	2,612	144.12
Totals	$782,750	$165,230	21.11	$751,450	$162,015	21.56	96.00

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Kern County							
1 ______	$11,500	$2,070	18.00	$13,500	$2,070	15.33	117.39
2 ______	20,000	4,465	22.33	22,000	4,055	18.43	110.00
3 ______	65,000	12,690	19.52	75,000	12,040	16.05	115.38
4 ______	3,000	365	12.17	2,200	365	16.59	73.33
5 ______	11,000	1,960	17.82	11,000	1,960	17.82	100.00
6 ______	1,750	350	20.00	1,750	350	20.00	100.00
7 ______	9,500	1,475	15.53	8,000	1,475	18.45	84.21
8 ______	7,850	1,185	15.10	7,500	1,185	15.80	95.54
9 ______	7,000	1,510	21.57	5,500	1,510	27.45	78.57
10 ______	7,500	1,100	14.67	5,200	1,100	21.15	69.33
11 ______	8,100	975	12.04	6,500	975	15.00	80.25
12 ______	9,000	1,610	17.89	7,800	1,610	20.64	86.67
13 ______	9,000	1,540	17.11	8,350	1,540	18.44	92.78
14 ______	10,250	1,935	18.88	11,000	1,935	17.59	107.32
15 ______	6,500	1,155	17.77	5,000	1,155	23.10	76.92
16 ______	9,500	2,105	22.16	11,000	2,105	19.14	115.79
17 ______	9,000	1,815	20.17	10,000	1,815	18.15	111.11
18 ______	7,750	1,445	18.65	6,600	1,335	20.23	85.16
19 ______	30,000	4,705	15.68	37,000	4,705	12.72	123.33
20 ______	30,000	4,320	14.40	25,000	4,320	17.28	83.33
21 ______	20,000	2,470	12.35	17,500	2,470	14.11	87.50
22 ______	25,000	3,020	12.08	18,000	2,920	16.22	72.00
23 ______	5,500	1,120	20.36	4,000	1,120	28.00	72.73
24 ______	8,500	1,215	14.29	7,500	1,215	16.20	88.24
25 ______	4,500	620	13.78	3,500	620	17.71	77.78
26 ______	12,825	3,275	25.54	22,000	3,275	14.89	171.54
27 ______	40,000	10,270	25.68	63,000	10,270	16.30	157.50
28 ______	13,500	4,475	33.15	17,000	4,375	25.74	125.92
29 ______	4,020	450	11.19	4,500	450	10.00	111.94
30 ______	7,500	1,460	19.47	6,250	1,460	23.36	83.33
31 ______	10,000	1,665	16.65	9,500	1,665	17.53	95.00
32 ______	3,500	350	10.00	2,250	350	15.56	64.28
33 ______	9,750	1,390	14.26	7,500	1,390	18.53	76.92
34 ______	11,000	2,320	21.09	1,200	620	51.67	10.91
35 ______	6,500	685	10.54	4,500	685	15.22	69.23
36 ______	10,500	1,810	17.24	10,000	1,810	18.10	95.24
37 ______	5,000	575	11.50	4,000	575	14.38	80.00
38 ______	4,000	685	17.13	3,500	685	19.57	87.50
39 ______	550	210	38.18	1,400	210	15.00	254.54
40 ______	56,000	2,320	4.14	12,000	1,545	12.88	21.43
41 ______	900	375	41.67	1,875	375	20.00	208.33
Totals _____	$532,245	$89,535	16.82	$500,875	$85,690	17.11	94.11
Kings County							
1 ______	$8,500	$1,755	20.65	$6,250	$1,755	28.08	73.53
2 ______	5,800	1,250	21.55	5,500	1,250	22.73	94.83
3 ______	6,000	1,280	21.33	5,500	1,280	23.27	91.67
4 ______	12,000	3,625	30.21	16,500	3,625	21.97	137.50
5 ______	11,000	2,945	26.77	9,200	2,815	30.60	83.64
6 ______	8,250	2,195	26.61	7,500	2,195	29.27	90.91
7 ______	6,500	2,470	38.00	8,000	2,470	30.88	123.08
8 ______	3,250	840	25.85	3,300	840	25.45	101.54
9 ______	69,937	16,270	23.26	46,500	15,125	32.53	66.49
Totals _____	$131,237	$32,630	24.86	$108,250	$31,355	28.96	82.48

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Lake County							
1	$6,000	$1,700	28.33	$7,000	$1,700	24.28	116.67
2	9,000	2,420	26.89	8,500	1,890	22.24	94.44
3	4,000	1,330	33.25	4,750	1,330	28.00	118.75
4	17,500	3,630	20.74	16,500	3,630	22.00	94.28
5	11,500	5,270	45.83	20,000	4,980	24.90	173.91
6	7,500	2,180	29.07	900	220	24.44	12.00
7	12,500	3,360	26.88	12,500	3,360	26.88	100.00
8	5,500	2,380	43.27	7,500	2,380	31.73	136.36
9	9,500	1,520	16.00	3,500	1,520	43.43	36.84
10	3,300	480	14.55	1,100	480	43.64	33.33
11	40,000	3,300	8.25	4,500	3,300	73.33	11.25
12	6,200	1,380	22.26	3,250	1,280	39.38	52.42
Totals	$132,500	$28,950	21.85	$90,000	$26,070	28.97	67.92
Lassen County							
1	$70,000	$14,260	20.37	$95,000	$14,260	15.01	135.71
2	30,000	6,450	21.50	24,500	6,450	26.33	81.67
3	60,000	3,880	6.47	18,500	3,880	20.97	30.83
4	24,600	8,450	34.35	38,500	8,450	21.95	156.50
Totals	$184,600	$33,040	17.90	$176,500	$33,040	18.72	95.61
Los Angeles County							
1	$63,500	$18,100	28.50	$125,000	$17,940	14.35	196.85
2	17,500	5,990	34.23	26,000	5,990	23.04	148.57
3	2,750,000	932,000	33.89	3,000,000	932,000	31.07	109.09
4	180,000	67,320	37.40	200,000	67,320	33.66	111.11
5	725,000	348,550	48.08	800,000	348,550	43.57	110.34
6	50,000	14,930	29.86	50,000	14,930	29.86	100.00
7	120,000	29,820	24.85	100,000	29,820	29.82	83.33
8	30,000	9,880	32.93	42,500	9,880	23.25	141.67
9	390,000	234,460	60.12	530,000	234,460	44.24	135.90
10	220,600	30,670	13.90	115,000	30,670	26.67	52.13
11	137,500	43,390	31.56	165,000	43,390	26.30	120.00
12	700,000	122,830	17.55	380,000	122,830	32.32	54.28
13	160,000	40,100	25.06	120,000	39,490	32.91	75.00
14	200,000	68,540	34.27	275,000	68,540	24.92	137.50
15	360,000	105,040	29.18	400,000	105,040	26.26	111.11
16	81,389	19,050	23.41	85,000	19,050	22.41	104.44
17	100,000	45,970	45.97	150,000	45,970	30.65	150.00
18	40,000	16,910	42.28	50,000	16,160	32.32	125.00
19	265,000	136,360	51.46	390,000	136,360	34.96	147.17
20	50,000	18,790	37.58	60,000	18,790	31.32	120.00
21	200,000	74,320	37.16	245,000	74,320	30.33	122.50
22	115,000	43,090	37.47	130,000	43,090	33.15	113.04
23	60,000	24,490	40.82	60,000	24,490	40.82	100.00
24	100,000	26,410	26.41	105,000	26,410	25.15	105.00
25	112,500	27,050	24.04	124,000	26,300	21.21	110.22
26	42,500	10,650	25.06	52,500	10,650	20.28	123.53
27	90,000	23,390	25.99	90,000	23,190	25.77	100.00
28	38,000	10,840	28.53	45,000	9,940	22.09	118.42
29	190,000	44,000	23.16	160,000	44,000	27.50	84.21
30	165,000	38,830	23.53	165,000	38,830	23.53	100.00
31	62,500	14,130	22.61	65,000	14,130	21.74	104.00
32	55,000	14,060	25.56	65,000	14,060	21.63	118.18
33	11,000	2,660	24.18	12,750	2,660	20.86	115.91
34	9,750	1,730	17.74	9,750	1,660	17.03	100.00
35	10,750	3,280	30.51	14,000	3,280	23.43	130.23

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Los Angeles County—Continued							
36 ______	18,000	3,450	19.17	17,000	3,450	20.29	94.44
37 ______	10,000	2,360	23.60	8,000	2,360	29.50	80.00
38 ______	12,000	2,460	20.50	12,000	2,460	20.50	100.00
39 ______	11,250	2,050	18.22	11,000	2,050	18.64	97.78
40 ______	18,950	4,910	25.91	19,600	4,710	24.03	103.43
41 ______	9,950	2,020	20.30	9,500	2,020	21.26	95.48
42 ______	9,750	1,880	19.28	10,000	1,880	18.80	102.56
43 ______	18,250	4,250	23.29	20,000	4,250	21.25	109.59
44 ______	7,500	1,960	26.13	8,900	1,960	22.02	118.67
45 ______	10,000	3,310	33.10	17,000	3,310	19.47	170.00
46 ______	5,750	1,430	24.87	7,000	1,430	20.43	121.74
47 ______	9,500	2,180	22.95	10,000	2,180	21.80	105.26
48 ______	5,250	900	17.14	6,000	850	14.17	114.28
49 ______	13,850	3,150	22.74	15,500	3,150	20.32	111.91
50 ______	8,100	1,510	18.64	8,500	1,540	18.12	104.94
51 ______	8,300	1,930	23.25	9,000	1,930	21.44	108.43
52 ______	17,500	4,340	24.80	18,750	3,820	20.37	107.14
53 ______	8,750	1,650	18.86	8,750	1,650	18.86	100.00
54 ______	14,500	2,020	13.93	13,000	2,020	15.54	89.66
55 ______	12,500	2,310	18.48	12,500	2,310	18.48	100.00
56 ______	23,500	6,560	27.91	27,500	6,560	23.85	117.02
57 ______	12,000	2,620	21.83	13,000	2,620	20.15	108.33
58 ______	15,000	3,180	21.20	13,000	3,180	24.46	86.67
59 ______	17,500	4,280	24.46	17,500	4,280	24.46	100.00
60 ______	14,500	3,110	21.45	12,500	3,060	24.48	86.21
61 ______	10,000	1,700	17.00	9,500	1,700	17.89	95.00
62 ______	6,750	970	14.37	6,250	970	15.52	92.59
63 ______	17,500	3,410	19.49	17,000	3,410	20.06	97.14
64 ______	4,950	860	17.37	4,750	860	18.10	95.96
65 ______	10,000	1,590	15.90	8,750	1,590	18.17	87.50
66 ______	8,500	2,050	24.12	10,000	2,050	20.50	117.65
67 ______	13,250	2,800	21.13	14,700	2,800	19.05	110.94
68 ______	16,500	3,420	20.73	14,000	2,990	21.36	84.85
69 ______	7,000	1,140	16.29	7,000	1,140	16.28	100.00
70 ______	11,000	1,740	15.82	9,500	1,740	18.32	86.36
71 ______	18,000	3,990	22.17	16,000	3,990	24.94	88.89
72 ______	10,500	1,860	17.71	8,500	1,860	21.88	80.95
73 ______	75,000	20,820	27.76	85,000	20,820	24.49	113.33
74 ______	9,000	1,950	21.67	9,000	1,950	21.67	100.00
75 ______	9,500	2,050	21.58	8,500	1,880	22.12	89.47
76 ______	23,500	4,450	18.94	19,250	4,450	23.12	81.91
77 ______	9,500	1,730	18.21	8,250	1,550	18.79	86.84
78 ______	17,500	3,130	17.89	14,000	2,520	18.00	80.00
79 ______	16,500	2,530	15.33	15,500	2,250	14.52	93.94
80 ______	10,500	1,850	17.62	9,500	1,850	19.47	90.48
81 ______	11,500	2,180	18.96	10,750	1,690	15.72	93.48
82 ______	21,000	4,930	23.48	20,000	4,630	23.15	95.24
83 ______	9,000	2,300	25.56	10,500	2,160	20.57	116.67
84 ______	6,500	1,500	23.08	6,750	1,500	22.22	103.85
85 ______	13,150	3,220	24.49	12,750	3,220	25.25	96.96
86 ______	18,500	3,080	16.65	14,000	3,040	21.71	75.68
87 ______	10,500	1,940	18.48	10,000	1,940	19.40	95.24
88 ______	7,000	1,440	20.57	7,250	1,440	19.86	103.57
89 ______	9,500	3,480	36.63	14,500	3,480	24.00	152.63
90 ______	7,250	1,360	18.76	8,250	1,360	16.48	113.79
91 ______	13,000	2,330	17.92	10,000	2,330	23.30	76.92
92 ______	12,000	3,160	26.33	12,500	3,160	25.28	104.17
93 ______	13,500	2,970	22.00	13,800	2,970	21.52	102.22
94 ______	13,000	3,010	23.15	12,500	3,010	24.08	96.15
95 ______	10,500	1,950	18.57	8,500	1,820	21.41	80.95

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Los Angeles County—Continued							
96	$7,000	$1,560	22.29	$7,000	$1,560	22.28	100.00
97	10,200	2,170	21.27	9,500	2,170	22.84	93.14
98	7,500	1,480	19.73	8,000	1,480	18.50	106.67
99	9,500	2,060	21.68	9,000	2,060	22.89	94.74
100	9,000	2,040	22.67	7,500	2,000	26.67	83.33
101	8,100	1,970	24.32	9,250	1,970	21.30	114.20
102	8,500	1,750	20.59	8,500	1,750	20.59	100.00
103	15,000	2,790	18.60	13,500	2,790	20.67	90.00
104	16,000	3,560	22.25	15,000	3,560	23.76	93.75
105	12,500	2,450	19.60	12,000	2,450	20.42	96.00
106	21,500	4,530	21.07	21,500	4,530	21.07	100.00
107	34,000	6,800	20.00	28,000	6,800	24.28	82.35
108	29,000	4,100	14.14	19,500	4,100	21.02	67.24
109	24,000	5,270	21.96	23,500	4,870	20.72	97.92
110	22,500	3,850	17.11	19,500	3,850	19.74	86.67
111	32,500	7,630	23.48	25,000	7,630	30.52	76.92
112	30,000	5,400	18.00	23,000	5,400	23.48	76.67
113	21,500	3,500	16.28	16,500	3,500	21.21	76.74
114	36,000	6,230	17.31	32,500	6,230	19.17	90.28
115	53,500	15,000	28.04	52,500	15,000	28.57	98.13
116	6,250	1,320	21.12	6,500	1,320	20.31	104.00
117	11,000	2,600	23.64	12,000	2,600	21.67	109.09
118	31,500	6,250	19.84	30,000	6,250	20.83	95.24
119	15,500	3,290	21.23	14,500	3,290	22.69	93.55
120	24,750	4,770	19.27	25,000	4,770	19.08	101.01
121	12,250	2,070	16.90	10,500	2,070	19.71	85.71
122	12,000	2,290	19.08	11,000	2,110	19.18	91.67
123	7,000	1,390	19.86	7,500	1,390	18.53	107.14
124	5,000	980	19.60	5,750	980	17.04	115.00
125	12,000	3,380	28.17	12,500	2,800	22.40	104.17
126	12,500	3,310	26.48	13,000	3,310	25.46	104.00
127	9,500	1,690	17.79	9,500	1,690	17.79	100.00
128	10,000	2,380	23.80	9,000	2,380	26.44	90.00
129	20,000	9,620	48.10	35,000	9,620	27.48	175.00
130	19,000	3,650	19.21	17,500	3,650	20.86	92.10
131	95,000	19,710	20.75	100,000	19,710	19.71	105.26
132	22,500	5,080	22.58	25,000	5,080	20.32	111.11
133	14,500	2,910	20.07	16,000	2,910	18.19	110.34
134	18,500	3,560	19.24	20,000	3,560	17.80	108.11
135	23,500	5,130	21.83	26,000	5,130	19.73	110.64
136	11,500	1,860	16.17	9,000	1,860	20.67	78.26
137	28,500	6,170	21.65	32,500	6,170	18.98	114.04
138	16,500	2,690	16.30	13,000	2,690	20.69	78.79
139	7,000	1,140	16.29	9,000	1,140	12.67	128.57
140	9,000	1,170	13.00	8,500	1,170	13.76	94.44
141	17,500	4,690	26.80	18,500	4,690	25.35	105.71
142	7,500	1,840	24.53	9,500	1,840	19.37	126.67
143	16,000	2,850	17.81	13,500	2,850	21.11	84.38
144	14,500	4,090	28.21	18,000	4,090	22.72	124.14
145	5,500	710	12.91	6,000	710	11.83	109.09
146	7,500	2,230	29.73	8,500	2,230	26.24	113.33
147	6,500	2,570	39.54	14,000	2,570	18.36	215.38
148	7,500	1,090	14.53	4,250	1,090	25.65	56.67
149	11,500	1,340	11.65	11,500	1,340	11.65	100.00
150	10,800	2,200	20.37	11,000	2,200	20.00	101.85
151	8,750	1,080	12.34	7,500	1,080	14.40	85.71
152	7,900	1,560	19.75	6,750	1,560	23.11	85.44
153	19,500	4,070	20.87	20,000	4,070	20.35	102.56
154	7,850	1,400	17.83	9,000	1,400	15.56	114.65
155	6,950	1,310	18.85	6,000	1,310	21.83	86.33

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Los Angeles County—Continued							
156	$8,000	$1,200	15.00	$7,000	$1,200	17.14	87.50
157	8,750	1,840	21.03	8,000	1,840	23.00	91.43
158	10,500	2,150	20.48	8,500	2,150	25.29	80.95
159	9,000	1,800	20.00	11,500	1,800	15.65	127.78
160	10,000	2,770	27.70	10,400	2,770	26.63	104.00
161	7,300	1,220	16.71	7,750	1,220	15.74	106.16
162	7,500	1,090	14.53	9,000	1,090	12.11	120.00
163	21,500	5,790	26.93	27,500	5,790	21.05	127.91
164	180,000	34,420	19.12	137,500	34,420	25.03	76.39
165	18,500	5,740	31.03	27,500	5,740	20.87	148.65
166	7,500	1,520	20.27	8,500	1,520	17.88	113.33
167	5,500	1,130	20.55	6,000	1,130	18.83	109.09
168	9,500	1,650	17.37	9,500	1,650	17.37	100.00
169	10,500	3,150	30.00	15,000	3,150	21.00	142.86
170	65,000	11,530	17.74	55,000	11,530	20.96	84.62
171	9,500	1,730	18.21	9,000	1,730	19.22	94.74
172	11,000	1,740	15.82	10,000	1,740	17.40	90.91
173	8,500	1,480	17.41	9,250	1,480	16.00	108.82
174	6,500	1,500	23.08	7,200	1,500	20.83	110.77
175	7,250	1,490	20.55	7,500	1,490	19.87	103.45
176	8,500	1,740	20.47	9,250	1,740	18.81	108.82
177	5,500	970	17.64	7,250	970	13.38	131.82
178	4,000	1,260	31.50	5,500	1,260	22.91	137.50
179	8,500	2,110	24.82	9,700	2,110	21.75	114.12
180	6,500	930	14.31	6,500	930	14.31	100.00
181	6,000	1,370	22.83	6,500	1,370	21.08	108.33
182	9,250	2,070	22.38	10,300	2,070	20.10	111.35
183	5,800	1,050	18.10	8,250	1,050	12.73	142.24
184	6,200	1,300	20.97	9,500	1,300	13.68	153.22
185	8,850	1,260	14.24	8,500	1,260	14.82	96.04
186	4,250	720	16.94	6,000	720	12.00	141.18
187	9,950	2,200	22.11	12,750	2,200	17.25	128.14
188	2,500	650	26.00	4,500	650	14.44	180.00
189	8,000	1,950	24.38	10,750	1,950	18.14	134.38
190	7,000	2,000	28.57	8,750	2,000	22.86	125.00
191	5,000	1,060	21.20	6,000	1,060	17.67	120.00
192	8,500	2,330	27.41	9,000	2,330	25.89	105.88
193	5,000	1,010	20.20	6,000	1,010	16.83	120.00
194	5,250	780	14.86	7,300	780	10.68	139.05
195	7,500	1,900	25.33	7,500	1,900	25.33	100.00
196	12,500	2,130	17.04	13,500	2,130	15.78	108.00
197	13,500	2,680	19.85	15,000	2,680	17.87	111.11
198	9,250	1,760	19.03	9,000	1,760	19.56	97.30
199	10,300	1,900	18.45	9,250	1,900	20.54	89.80
200	5,000	610	12.20	4,250	610	14.35	85.00
201	11,000	2,460	22.36	11,500	2,460	21.39	104.54
202	15,000	3,390	22.60	16,000	2,600	16.25	106.67
203	13,850	1,800	13.00	9,500	1,800	18.95	68.59
204	10,500	1,950	18.57	10,500	1,950	18.57	100.00
205	12,300	1,990	16.18	10,000	1,990	19.90	81.30
206	29,000	7,180	24.76	32,500	7,180	22.09	112.07
207	10,250	2,070	20.20	11,500	2,070	18.00	112.20
208	9,000	1,610	17.89	7,000	1,610	23.00	77.78
209	15,000	2,870	19.13	14,000	2,870	20.50	93.33
210	16,500	2,590	15.70	16,000	1,690	10.56	96.97
211	20,000	3,720	18.60	17,500	3,720	21.26	87.50
212	10,500	1,720	16.38	10,500	1,720	16.38	100.00
213	17,500	3,300	18.86	15,500	3,300	21.29	88.57
214	18,500	4,180	22.59	18,000	4,000	22.22	97.30
215	13,500	2,700	20.00	12,000	2,620	21.83	88.89

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Los Angeles County—Continued							
216	$13,000	$2,500	19.23	$11,500	$2,500	21.74	88.46
217	11,000	2,090	19.00	10,000	2,090	20.90	90.91
218	7,500	1,250	16.67	9,000	1,250	13.89	120.00
219	12,000	2,230	18.58	13,000	2,230	17.15	108.33
220	8,500	1,540	18.12	8,000	1,540	19.25	94.12
221	17,500	3,440	19.66	17,000	3,440	20.24	97.14
222	16,000	3,430	21.44	14,500	3,430	23.66	90.62
223	6,250	1,390	22.24	7,500	1,390	18.53	120.00
224	12,750	2,990	23.45	13,000	2,990	23.00	101.96
225	24,500	3,820	15.59	18,000	3,820	21.22	73.47
226	11,700	1,740	14.87	8,750	1,740	19.88	74.79
227	10,500	1,480	14.10	13,000	1,480	11.38	123.81
228	8,800	1,200	13.64	8,000	1,200	15.00	90.91
229	9,000	1,220	13.56	9,000	1,220	13.56	100.00
230	8,350	1,270	15.21	8,500	1,270	14.94	101.80
231	8,600	1,310	15.23	7,200	1,310	18.19	83.72
232	8,250	1,350	16.36	7,750	1,350	17.42	93.94
233	7,500	1,010	13.47	6,000	1,010	16.83	80.00
234	13,000	1,980	15.23	11,750	1,980	16.85	90.38
235	7,500	1,730	23.07	8,500	1,730	20.35	113.33
236	14,000	2,680	19.14	11,750	2,680	22.81	83.93
237	14,500	2,320	16.00	13,500	2,320	17.18	93.10
238	82,000	23,800	29.02	90,000	23,800	26.44	109.76
239	6,700	1,240	18.51	6,000	1,240	20.67	89.55
240	8,500	1,220	14.35	6,250	1,220	19.52	73.53
241	12,000	2,430	20.25	12,500	2,430	19.44	104.17
242	6,350	1,230	19.37	5,250	1,230	23.42	82.68
243	7,500	1,430	19.07	7,250	1,430	19.72	96.67
244	4,500	560	12.44	4,000	560	14.00	88.89
245	6,750	1,620	24.00	8,500	1,620	19.06	125.93
246	7,050	1,280	18.16	6,000	1,280	21.33	85.11
247	4,700	690	14.68	5,200	690	13.27	110.64
248	9,500	2,250	23.68	10,500	2,250	21.43	110.53
249	2,900	640	22.07	3,500	640	18.28	120.69
250	6,800	1,440	21.18	6,000	1,440	24.00	88.24
251	5,250	1,050	20.00	4,750	1,050	22.10	90.48
252	14,950	3,150	21.07	12,000	3,150	26.25	80.27
253	10,500	2,300	21.90	10,250	2,300	22.44	97.62
254	8,000	1,790	22.38	8,250	1,790	21.70	103.12
255	4,500	1,130	25.11	4,400	1,130	25.68	97.78
256	6,850	1,190	17.37	6,500	1,130	17.38	94.89
257	10,500	1,930	18.38	10,000	1,870	18.70	95.24
258	9,000	1,920	21.33	9,750	1,810	18.56	108.33
259	4,500	480	10.67	3,750	450	12.00	83.33
260	6,000	1,040	17.33	5,250	960	18.28	87.50
261	7,500	1,260	16.80	7,250	1,260	17.38	96.67
262	16,000	3,390	21.19	13,000	3,390	26.08	81.25
263	10,500	1,680	16.00	8,500	1,680	19.76	80.95
264	17,000	3,800	22.35	15,750	3,800	24.13	92.65
265	7,250	1,150	15.86	7,500	1,150	15.33	103.45
266	13,500	2,560	18.96	13,750	2,560	18.62	101.85
267	7,940	1,940	24.43	9,250	1,940	20.97	116.50
268	3,950	850	21.52	3,200	850	26.56	81.01
269	13,000	2,580	19.85	11,000	2,430	22.09	84.62
270	15,000	2,110	14.07	12,000	2,110	17.58	80.00
271	9,000	2,730	30.33	11,000	2,730	24.82	122.22
272	8,000	1,230	15.38	5,500	1,230	22.36	68.75
273	7,500	800	10.67	5,500	800	14.54	73.33
274	5,750	720	12.52	4,750	720	15.16	82.61
275	18,000	3.840	21.33	16,500	3,840	23.27	91.67

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Los Angeles County—Continued							
276 ------	$9,500	$1,660	17.47	$9,750	$1,660	17.02	102.63
277 ------	12,000	2,260	18.83	11,000	2,260	20.54	91.67
278 ------	11,000	1,960	17.82	11,500	1,960	17.04	104.54
279 ------	22,000	5,230	23.77	25,000	5,230	20.92	113.64
280 ------	5,000	660	13.20	4,500	660	14.67	90.00
281 ------	9,000	2,190	24.33	9,300	2,190	23.55	103.33
282 ------	11,500	2,770	24.09	10,500	2,770	26.38	91.30
283 ------	25,000	4,970	19.88	24,000	4,970	20.71	96.00
284 ------	16,500	3,000	18.18	15,500	3,000	19.35	93.94
285 ------	13,500	2,720	20.15	11,000	2,720	24.73	81.48
286 ------	8,500	1,080	12.71	6,300	1,080	17.14	74.12
287 ------	12,000	1,870	15.58	9,750	1,870	19.18	81.25
288 ------	10,000	1,460	14.60	9,500	1,460	15.37	95.00
289 ------	13,000	2,590	19.92	11,750	2,590	22.04	90.38
290 ------	11,380	1,830	16.08	10,500	1,830	17.43	92.27
291 ------	11,140	2,020	18.13	11,750	2,020	17.19	105.48
292 ------	5,500	1,180	21.45	7,500	1,180	15.73	136.36
293 ------	13,000	2,260	17.38	11,750	2,260	19.23	90.38
294 ------	14,500	2,450	16.90	13,000	2,350	18.08	89.66
295 ------	8,500	1,680	19.76	9,500	1,680	17.68	111.76
296 ------	15,000	2,870	19.13	13,000	2,870	22.08	86.67
297 ------	17,500	3,510	20.06	15,000	3,510	23.40	85.71
298 ------	11,700	2,040	17.44	10,500	2,040	19.43	89.74
299 ------	25,053	5,650	22.55	23,000	5,650	24.56	91.80
300 ------	60,000	9,750	16.25	54,000	9,750	18.06	90.00
301 ------	16,500	8,040	48.73	20,750	8,040	38.75	125.76
Totals ------	$10,973,952	$3,430,250	31.26	$12,011,500	$3,419,510	28.47	109.45
Madera County							
1 ------	$60,000	$14,470	24.12	$70,000	$13,470	19.24	116.67
2 ------	20,000	3,940	19.70	16,500	3,390	20.54	82.50
3 ------	100,000	20,050	20.05	70,000	20,050	28.64	70.00
4 ------	25,000	4,500	18.00	20,000	4,500	22.50	80.00
5 ------	55,000	14,160	25.75	60,000	14,160	23.60	109.09
6 ------	5,500	1,530	27.82	6,750	1,490	22.07	122.73
7 ------	4,500	1,370	30.44	5,500	1,280	23.27	122.22
8 ------	6,500	1,060	16.30	4,750	1,060	22.32	73.08
9 ------	11,500	1,750	15.22	8,500	1,750	20.59	73.91
10 ------	125,000	16,680	13.34	104,000	16,480	15.85	83.20
Totals ------	$413,000	$79,510	19.25	$366,000	$77,630	21.21	88.62
Marin County							
1 ------	$19,500	$2,725	13.97	$14,500	$2,725	18.79	74.36
2 ------	22,500	4,950	22.00	21,000	4,950	23.57	93.33
3 ------	13,500	2,500	18.52	11,000	2,500	22.73	81.48
4 ------	12,500	2,275	18.20	8,500	2,275	26.76	68.00
5 ------	11,000	2,350	21.36	8,000	2,350	29.38	72.73
6 ------	139,000	14,100	10.14	81,000	14,180	17.51	58.27
7 ------	13,750	2,900	21.09	11,000	2,900	26.36	80.00
8 ------	14,000	2,925	20.89	11,000	2,925	26.59	78.57
9 ------	13,750	3,125	22.73	11,000	3,125	28.41	80.00
10 ------	15,500	2,240	14.45	13,000	2,240	17.23	83.87
11 ------	17,500	3,450	19.71	13,000	3,450	26.54	74.28
12 ------	11,500	1,800	15.65	6,500	1,800	27.69	56.52
13 ------	17,500	2,965	16.94	13,500	2,965	21.96	77.14
14 ------	25,000	5,180	20.72	27,500	4,500	16.36	110.00
15 ------	14,500	2,705	18.66	11,500	2,705	23.52	79.31
16 ------	15,500	7,800	50.32	13,000	7,800	60.00	83.87
17 ------	16,500	3,300	20.00	14,500	3,300	22.76	87.88
18 ------	16,500	3,360	20.36	16,000	3,100	19.38	96.97
19 ------	400,000	48,820	12.21	245,000	48,670	19.86	61.25
20 ------	42,600	10,750	25.23	69,800	10,750	15.40	163.85

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Nevada County							
1 ------	$45,000	$15,630	34.73	$46,000	$7,500	16.30	102.22
2 ------	8,000	2,600	32.50	7,500	1,550	20.67	93.75
3 ------	7,250	1,940	26.76	5,500	1,750	31.82	75,86
4 ------	22,500	8,980	39.91	25,000	5,400	21.60	111.11
5 ------	12,250	2,980	24.33	10,000	2,500	25.00	81.63
6 ------	10,500	3,320	31.62	10,500	1,500	14.28	100.00
7 ------	15,000	2,460	16.40	13,000	3,000	23.08	86.67
Totals -----	$120,500	$37,910	31.46	$117,500	$23,200	19.74	97.51
Orange County							
1 ------	$105,000	$26,930	25.63	$60,000	$26,930	44.88	57.14
2 ------	100,000	49,670	49.67	75,000	49,670	66.23	75.00
3 ------	22,500	12,340	54.84	35,000	12,340	35.26	155.56
4 ------	25,000	6,310	25.24	30,000	6,920	23.07	120.00
5 ------	3,250	900	27.69	3,000	900	30.00	92.31
6 ------	7,250	1,510	20.83	8,000	1,620	20.25	110.34
7 ------	10,000	3,040	30.40	10,000	3,100	31.00	100.00
8 ------	4,000	710	17.75	3,500	760	21.71	87.50
9 ------	18,500	4,660	25.19	2,000	290	14.50	10.81
10 ------	12,000	3,300	27.50	12,500	3,300	26.40	104.17
11 ------	8,500	3,150	37.06	10,500	3,230	30.76	123.53
12 ------	6,500	2,090	32.15	6,750	2,280	33.78	103.85
13 ------	8,750	1,970	22.51	8,750	2,060	23.54	100.00
14 ------	4,500	1,420	31.56	5,000	1,420	28.40	111.11
15 ------	18,000	3,810	21.17	16,000	4,410	27.56	88.89
16 ------	7,950	1,170	14.72	3,000	1,210	40.33	37.74
17 ------	17,500	4,050	23.14	18,500	4,390	23.73	105.71
18 ------	17,500	3,880	22.17	14,000	4,060	29.00	80.00
19 ------	9,000	2,100	23.33	7,000	2,110	30.14	77.78
20 ------	4,500	1,660	36.89	5,250	1,720	32.76	116.67
21 ------	6,000	1,280	21.33	6,000	1,330	22.17	100.00
22 ------	8,750	2,460	28.11	11,500	2,410	20.96	131.43
23 ------	14,500	2,900	20.00	14,000	2,900	20.71	96.55
24 ------	13,500	3,590	26.59	14,000	4,120	29.43	103.70
25 ------	9,500	3,020	31.79	10,500	3,020	28.76	110.53
26 ------	8,500	3,120	36.71	9,800	2,790	28.47	115.29
27 ------	4,500	1,260	28.00	6,350	1,260	19.84	141.11
28 ------	10,000	1,970	19.70	10,000	1,970	19.70	100.00
29 ------	3,750	560	14.93	2,300	560	24.35	61.33
30 ------	10,000	2,760	27.60	13,000	2,760	21.23	130.00
31 ------	10,500	2,500	23.81	8,500	2,610	30.70	80.95
32 ------	30,000	8,650	28.83	25,000	8,650	34.60	83.33
33 ------	60,000	17,510	29.18	65,000	17,510	26.94	108.33
34 ------	18,750	3,900	20.80	15,000	3,900	26.00	80.00
35 ------	19,500	4,850	24.87	18,500	4,850	26.22	94.87
36 ------	14,000	3,860	27.57	13,000	3.860	29.69	92.86
37 ------	6,750	1,700	25.19	6,000	1,700	28.33	88.89
38 ------	3,200	1,440	45.00	4,500	1,440	32.00	140.63
39 ------	8,000	1,460	18.25	7,500	1,460	19.47	93.75
40 ------	9,500	2,100	22.11	8,500	2,100	24.70	89.47
41 ------	12,500	2,750	22.00	10,500	2,750	26.19	84.00
42 ------	10,500	2,070	19.71	8,750	2,070	23.66	83.33
43 ------	185,000	31,340	16.94	105,000	29,090	27.70	56.76
44 ------	16,500	9,830	59.58	23,250	9,830	42.28	140.91
45 ------	17,500	5,210	29.77	15,000	5,210	34.73	85.71
46 ------	45,000	16,330	36.29	55,000	14,950	27.18	122.22
47 ------	40,000	12,740	31.85	28,000	13,780	49.21	70.00
48 ------	25,000	11,530	46.12	15,000	7,870	52.47	60.00
Totals -----	$1,031,400	$297,360	28.83	$863,200	$289,470	33.53	83.69

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

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Placer County							
1	$22,500	$8,480	37.69	$25,000	$5,900	23.60	111.11
2	11,750	4,100	34.89	11,000	2,900	26.36	93.62
3	15,500	4,830	34.89	11,500	3,450	30.00	74.19
4	18,000	5,210	28.94	15,000	3,250	21.67	83.33
5	11,750	3,660	31.15	10,000	2,470	24.70	85.11
6	11,000	3,740	34.00	11,000	2,780	25.27	100.00
7	12,910	6,230	48.26	20,000	4,550	22.75	154.92
8	15,500	2,540	16.39	8,500	1,950	22.94	54.84
9	13,250	2,870	21.66	8,750	2,075	23.71	66.04
10	750	200	26.67	700	200	28.57	93.33
11	55,000	13,890	25.25	51,000	13,460	26.39	92.73
12	24,500	5,320	21.71	17,000	4,980	29.29	69.39
13	12,000	5,090	42.42	9,000	4,550	50.56	75.00
14	15,000	4,860	32.40	20,000	3,850	19.25	133.33
15	12,930	4,070	31.48	11,500	2,980	25.91	88.94
Totals	$252,340	$75,090	29.76	$229,950	$59,345	25.81	91.13
Plumas County							
1	$6,550	$3,095	47.25	$7,250	$3,095	42.69	110.69
2	6,750	2,910	43.11	7,800	2,910	37.31	115.56
3	13,750	6,745	49.05	15,000	6,745	44.97	109.09
4	9,800	5,380	54.90	14,500	5,380	37.10	147.96
5	5,500	3,030	55.09	8,000	3,030	37.88	145.45
6	35,000	11,245	32.13	40,000	8,135	20.34	114.28
7	50,000	10,820	21.64	60,000	10,335	17.22	120.00
8	25,000	5,550	22.20	18,000	5,550	30.83	72.00
Totals	$152,350	$48,775	32.02	$170,550	$45,180	26.49	111.95
Riverside County							
1	$7,000	$1,950	27.86	$6,500	$1,950	30.00	92.86
2	6,500	1,870	28.77	5,900	1,960	33.22	90.77
3	14,000	2,540	18.14	9,000	2,540	28.22	64.28
4	5,500	1,440	26.18	5,000	1,440	28.80	90.91
5	7,500	1,880	25.07	7,100	1,880	26.48	94.67
6	4,750	1,160	24.42	3,750	1,160	30.93	78.95
7	14,500	3,390	23.38	12,500	2,900	23.20	86.21
8	6,600	1,840	27.88	9,000	1,840	20.44	136.36
9	10,500	2,540	24.19	8,500	2,540	29.88	80.95
10	6,500	1,320	20.31	3,500	1,320	37.71	53.85
11	75,000	20,250	27.00	72,500	20,250	27.93	96.67
12	53,000	21,730	41.00	85,000	22,210	26.13	160.38
13	24,000	9,090	37.88	25,000	9,090	36.36	104.17
14	28,000	8,570	30.61	27,000	8,570	31.74	96.43
15	52,500	13,360	25.45	45,000	13,360	29.69	85.71
16	17,250	4,300	24.93	11,500	4,300	37.39	66.67
17	10,000	3,410	34.10	9,800	3,410	34.80	98.00
18	13,500	4,510	33.41	14,000	4,510	32.21	103.70
19	95,000	47,590	50.09	150,000	47,590	31.73	157.89
20	135,000	43,440	32.18	175,000	43,440	24.82	129.63
21	34,600	17,300	50.00	68,000	17,300	25.44	196.53
22	97,500	36,910	37.86	125,000	36,910	29.53	128.20
23	10,000	2,000	20.00	10,000	2,000	20.00	100.00
24	8,500	2,350	27.65	8,000	2,090	26.12	94.12
25	8,100	2,470	30.49	7,500	2,470	32.93	92.59
26	6,800	2,320	34.12	7,000	2,220	31.71	102.94
27	4,500	1,230	27.33	3,500	1,230	35.14	77.78
28	150,000	22,580	15.05	87,000	22,580	25.95	58.00
29	4,500	1,440	32.00	6,500	1,440	22.15	144.44
30	12,250	3,150	25.71	12,500	2,970	23.76	102.04

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Riverside County—Continued							
31 ------	$5,500	$900	16.36	$5,000	$900	18.00	90.91
32 ------	40,000	10,190	25.48	30,000	10,190	33.97	75.00
33 ------	55,000	10,980	19.96	55,200	10,980	19.89	100.36
34 ------	27,000	8,430	31.22	41,000	8,430	20.56	151.85
35 ------	33,000	9,320	28.24	30,000	9,320	31.07	90.91
36 ------	35,000	12,270	35.06	24,500	12,610	51.47	70.00
37 ------	22,928	6,020	26.26	26,500	6,700	25.28	115.58
38 ------	4,250	1,850	43,53	4,500	2,180	48.44	105.88
39 ------	3,000	1,390	46.33	4,300	1,390	32.32	143.33
40 ------	28,000	7,200	25.71	22,800	7,200	31.58	81.43
Totals -----	$1,177,028	$356,480	30.29	$1,264,350	$357,370	28.27	107.42
Sacramento County							
1 ------	$325,000	$83,000	25.54	$265,000	$83,000	31.32	81.54
2 ------	350,000	61,220	17.49	465,000	61,220	13.16	132.86
3 ------	180,000	51,800	28.78	215,000	51,800	24.09	119.44
4 ------	125,000	35,650	28.52	140,000	35,630	25.46	112.00
5 ------	10,500	1,850	17.62	8,500	1,850	21.76	80.95
6 ------	11,500	2,050	17.83	9,800	2,050	20.92	85.22
7 ------	10,800	1,700	15.74	10,000	1,700	17.00	92.59
8 ------	14,500	2,550	17.59	12,000	2,550	21.25	82.76
9 ------	8,750	1,600	18.29	6,500	1,600	24.62	74.28
10 ------	26,000	6,900	26.54	27,500	6,900	25.09	105.77
11 ------	13,500	2,400	17.78	12,500	2,400	19.20	92.59
12 ------	10,800	1,700	15.74	7,500	1,700	22.67	69.44
13 ------	12,250	2,850	23.27	11,500	2,850	24.78	93.88
14 ------	8,350	1,810	21.68	7,750	1,810	23.35	92.81
15 ------	8,200	1,850	22.56	8,500	1,850	21.76	103.66
16 ------	11,750	3,270	27.83	12,000	3,270	27.25	102.13
17 ------	8,800	2,300	26.14	8,500	2,300	27.06	96.59
18 ------	9,450	1,700	17.99	7,250	1,700	23.45	76.72
19 ------	8,750	1,560	17.83	10,500	1,560	14.86	120.00
20 ------	9,100	1,750	19.23	9,500	1,750	18.42	104.40
21 ------	55,000	11,980	21.78	70,000	11,980	17.11	127.27
22 ------	22,500	2,000	8.89	15,000	2,000	13.33	66.67
23 ------	50,000	5,250	10.50	30,000	5,250	17.50	60.00
24 ------	9,750	1,850	18.97	10,500	1,850	17.62	107.69
25 ------	10,750	1,780	16.56	10,500	1,780	16.95	97.67
26 ------	7,500	1,180	15.73	7,000	1,180	16.86	93.33
27 ------	7,850	1,130	14.39	6,000	1,130	18.83	76.43
28 ------	10,500	1,430	13.62	10,000	1,280	12.80	95.24
29 ------	40,000	8,070	20.18	44,000	8,070	18.34	110.00
30 ------	24,000	3,690	15.38	25,000	3,690	14.76	104.17
31 ------	40,000	12,000	30.00	51,000	12,000	23.53	127.50
32 ------	27,500	7,000	25.45	26,100	7,000	26.82	94.91
Totals -----	$1,468,350	$326,870	22.26	$1,559,900	$326,720	20.94	106.23
San Benito County							
1 ------	$18,000	$8,410	46.72	$14,000	$6,120	43.71	77.78
2 ------	21,000	7,160	34.10	17,500	5,290	30.23	83.33
3 ------	4,000	860	21.50	3,600	530	14.72	90.00
4 ------	14,500	4,320	29.79	12,000	3,730	31.08	82.76
5 ------	5,750	1,110	19.30	5,500	760	13.82	95.65
6 ------	7,250	1,700	23.45	5,500	1,170	21.27	75.86
7 ------	10,500	3,850	36.67	11,000	3,320	30.18	104.76
8 ------	11,000	3,010	27.36	10,000	2,170	21.70	90.91
9 ------	6,000	1,990	33.17	6,000	1,420	23.67	100.00
10 ------	8,000	2,160	27.00	7,500	1,490	19.87	93.75

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
San Benito County—Continued							
11	$5,200	$1,220	23.46	$4,250	$870	20.47	81.73
12	2,500	850	34.00	3,500	580	16.57	140.00
13	10,000	2,980	29.80	8,500	2,660	31.29	85.00
14	3,750	1,590	42.40	4,500	1,090	24.22	120.00
15	20,000	4,320	21.60	12,800	3,570	27.89	64.00
16	5,500	1,360	24.73	4,600	1,040	22.61	83.64
17	10,000	1,920	19.20	10,500	1,340	12.76	105.00
18	12,500	5,420	43.36	13,000	4,150	31.92	104.00
19	60,000	9,740	16.23	55,000	7,410	13.47	91.67
Totals	$235,450	$63,970	27.17	$209,250	$48,710	23.28	88.87
San Bernardino County							
1	$100,000	$19,790	19.79	$135,000	$16,030	11.87	135.00
2	80,000	10,300	12.88	100,000	9,980	9.98	125.00
3	35,000	4,840	13.83	27,000	3,830	14.18	77.14
4	30,000	4,130	13.77	40,000	3,130	7.82	133.33
5	55,000	8,800	16.00	55,000	4,880	8.87	100.00
6	33,000	4,720	14.30	30,000	3,820	12.73	90.91
7	40,000	6,710	16.78	32,500	6,370	19.60	81.25
8	15,000	2,310	15.40	17,000	2,310	13.59	113.33
9	8,900	1,120	12.58	7,000	1,120	16.00	78.65
10	9,500	1,660	17.47	10,000	1,250	12.50	105.26
11	6,000	1,290	21.50	7,700	1,180	15.32	128.33
12	10,000	1,400	14.00	8,000	1,400	17.50	80.00
13	12,000	1,440	12.00	13,000	1,440	11.08	108.33
14	9,000	940	10.44	7,500	940	12.53	83.33
15	7,600	3,650	48.03	8,000	3,650	45.62	105.26
16	22,000	4,750	21.59	24,000	4,750	19.79	109.09
17	12,750	3,250	25.49	20,000	3,250	16.25	156.86
18	13,500	3,110	23.04	25,500	3,110	12.20	188.89
19	6,500	1,270	19.54	6,000	1,350	22.50	92.31
20	2,000	520	26.00	2,000	460	23.00	100.00
21	8,750	1,560	17.83	7,500	1,480	19.73	85.71
22	5,700	1,130	19.82	6,000	990	16.50	105.26
23	3,700	600	16.22	3,000	450	15.00	81.08
24	9,000	1,750	19.44	9,500	1,750	18.42	105.56
25	7,800	1,520	19.49	8,000	1,520	19.00	102.56
26	10,000	3,200	32.00	12,000	3,200	26.67	120.00
27	15,000	4,570	30.47	15,000	4,570	30.47	100.00
28	14,500	4,210	29.03	15,000	4,210	28.07	103.45
29	59,500	14,400	24.20	70,000	14,400	20.57	117.65
30	45,000	12,850	28.56	27,000	9,240	34.22	60.00
31	7,500	1,500	20.00	8,000	1,500	18.75	106.67
32	4,950	1,010	20.40	5,750	1,010	17.56	116.16
33	5.000	1,210	24.20	5,500	1,210	22.00	110.00
34	10,000	2,250	22.50	14,000	2,250	16.07	140.00
35	9,500	1,920	20.21	9,500	1,920	20.21	100.00
36	4,500	920	20.44	4,500	920	20.44	100.00
37	4,750	870	18.32	5,000	870	17.40	105.26
38	3,850	1,490	38.70	6,500	1,490	22.92	168.83
39	2,850	1,050	36.84	3,000	1,050	35.00	105.26
40	385,000	99,700	25.90	350,000	102,250	29.21	90.91
41	18,000	6,780	37.67	20,000	6,480	32.40	111.11
42	12,000	2,600	21.67	12,000	2,550	21.25	100.00
43	11,500	2,090	18.17	9,500	2,450	25.79	82.61
44	11,000	2,170	19.73	10,500	2,020	19.24	95.45
45	11,750	2,360	20.09	9,500	2,360	24.84	80.85
46	9,000	2,220	24.67	10,500	2,530	24.10	116.67
47	6,750	1,680	24.89	7,500	1,630	21.73	111.11
48	8,750	2,550	29.14	11,000	2,220	20.18	125.71
49	11,750	3,260	27.74	14,000	3,080	22.00	119.15
50	17,500	5,290	30.23	24,000	4,000	16.67	137.14

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
San Bernardino County—Continued							
51 ______	$14,500	$2,870	19.79	$12,000	$2,670	22.26	82.76
52 ______	150,000	61,550	41.03	230,000	61,550	26.76	153.33
53 ______	17,000	5,580	32.82	15,000	5,580	37.20	88.24
54 ______	1,200	340	28.33	2,200	340	15.45	183.33
55 ______	7,500	1,420	18.93	10,800	1,420	13.15	144.00
56 ______	3,500	1,050	30.00	5,600	1,050	18.75	160.00
57 ______	12,500	3,380	27.04	14,000	3,380	24.14	112.00
58 ______	14,500	2,810	19.38	15,000	2,810	18.73	103.45
59 ______	6,950	1,400	20.14	5,700	1,400	24.56	82.01
60 ______	6,750	1,260	18.67	9,000	1,260	14.00	133.33
61 ______	2,000	530	26.50	2,800	530	18.93	140.00
62 ______	5,750	1,000	17.39	4,750	1,000	21.05	82.61
63 ______	6,500	790	12.15	4,700	790	16.81	72.31
64 ______	30,600	10,330	33.76	34,000	10,770	31.68	111.11
65 ______	15,000	6,000	40.00	19,350	5,820	30.08	129.00
66 ______	150,000	27,120	18.08	128,000	23,310	18.21	85.33
67 ______	42,500	23,050	54.24	70,000	21,390	30.56	164.71
68 ______	165,000	37,580	22.78	220,000	34,080	15.49	133.33
69 ______	380,000	70,710	18.61	390,000	74,850	19.19	102.63
70 ______	30,000	8,760	29.20	20,000	9,030	45.15	66.67
71 ______	22,500	5,650	25.11	15,000	5,450	36.33	66.67
72 ______	600,000	141,910	23.65	600,000	145,360	24.23	100.00
73 ______	60,000	15,090	25.15	95,000	14,890	15.67	158.33
74 ______	20,000	4,340	21.70	19,500	4,340	22.26	97.50
75 ______	9,500	2,140	22.53	9,000	2,140	23.78	94.74
76 ______	11,000	2,560	23.27	13,500	2,560	18.96	122.73
77 ______	8,500	1,850	21.76	9,000	1,690	18.78	105.88
78 ______	7,500	1,320	17.60	6,750	1,130	16.74	90.00
79 ______	7,500	1,400	18.67	8,000	1,460	18.25	106.67
80 ______	21,400	2,640	12.34	16,000	3,040	19.00	74.77
81 ______	8,900	1,340	15.06	7,000	1,790	25.57	78.65
82 ______	8,250	1,730	20.97	8,250	1,630	19.76	100.00
83 ______	5,250	1,300	24.76	5,500	1,410	25.64	104.76
84 ______	2,750	800	29.09	4,500	840	18.67	163.64
85 ______	7,850	1,360	17.32	7,000	1,780	25.43	89.17
86 ______	7,500	1,300	17.33	7,000	1,540	22.00	93.33
87 ______	5,600	1,260	22.50	6,500	1,580	24.31	116.07
88 ______	4,800	890	18.54	4,500	810	18.00	93.75
89 ______	9,250	2,140	23.14	8,000	2,000	25.00	86.49
90 ______	8,500	1,530	18.00	8,300	1,530	18.43	97.65
91 ______	4,750	1,050	22.11	5,000	1,050	21.00	105.26
92 ______	11,700	2,560	21.88	12,500	2,560	20.48	106.84
93 ______	11,000	2,570	23.36	12,000	2,570	21.42	109.09
94 ______	5,900	1,000	16.95	6,250	1,000	16.00	105.93
95 ______	17,000	4,420	26.00	18,500	4,420	23.89	108.82
96 ______	18,500	5,940	32.11	25,000	5,940	23.76	135.14
97 ______	11,750	2,780	23.66	10,000	2,780	27.80	85.11
98 ______	8,000	1,670	20.88	7,500	1,670	22.27	93.75
99 ______	4,550	970	19.60	5,250	950	18.10	106.06
100 ______	4,750	850	17.89	4,750	960	20.21	100.00
101 ______	4,200	820	19.52	3,750	820	21.87	89.29
102 ______	11,500	1,560	13.57	7,500	1,740	23.20	65.22
103 ______	6,500	450	6.92	6,000	320	5.33	92.31
104 ______	35,000	6,830	19.51	28,000	6,610	23.61	80.00
105 ______	105,000	42,200	40.19	220,000	42,200	19.18	209.52
106 ______	32,000	6,650	20.78	27,500	6,650	24.18	85.94
107 ______	37,000	10,020	27.08	37,000	10,020	27.08	100.00
108 ______	24,000	6,000	25.00	66,500	6,000	9.02	277.08
109 ______	29,000	3,560	12.28	20,000	3,560	17.80	68.96
110 ______	31,000	4,860	15.68	30,000	4,860	16.20	96.77

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

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San Bernardino County—Continued							
111	$10,000	$1,640	16.40	$11,000	$1,440	13.09	110.00
112	8,500	1,280	15.06	7,500	1,280	17.07	88.24
113	3,500	770	22.00	3,000	800	26.67	85.71
114	4,500	640	14.22	2,500	580	23.20	55.56
115	8,500	1,260	14.82	9,000	1,180	13.11	105.88
116	850	630	74.12	1,250	600	48.00	147.06
117	54,000	4,780	8.85	25,000	3,460	13.84	46.30
118	90,000	9,000	10.00	40,000	6,940	17.35	44.44
119	40,000	8,750	21.88	50,000	3,940	7.88	125.00
120	60,000	12,940	21.57	65,000	5,550	8.54	108.33
121	51,700	7,290	14.10	40,000	5,510	13.78	77.37
122	4,250	2,210	52.00	9,600	2,210	23.02	225.88
123	6,250	1,820	29.12	5,500	1,510	27.45	88.00
124	8,300	2,400	28.92	5,000	2,400	48.00	60.24
125	9000	4,410	49.00	11,500	4,900	42.61	127.78
126	18,000	9,090	50.50	22,900	10,090	44.06	127.22
127	4,500	2,350	52.22	8,700	2,350	27.01	193.33
128	9,000	1,170	13.00	7,000	1,170	16.71	77.78
129	20,000	3,370	16.85	7,800	1,050	13.46	39.00
130	12,500	2,030	16.24	9,500	1,850	19.47	76.00
131	3,000	1,600	53.33	4,000	1,600	40.00	133.33
132	46,000	7,080	15.39	24,000	1,520	6.33	52.17
133	15,000	2,920	19.47	18,000	2,920	16.22	120.00
Totals	$4,041,750	$930,980	23.03	$4,290,400	$891,380	20.78	106.15
San Diego County							
1	$17,500	$3,320	18.97	$14,000	$2,830	20.21	80.00
2	13,500	2,970	22.00	11,500	2,850	24.78	85.18
3	9,000	1,330	14.78	6,000	1,030	17.17	66.67
4	4,500	1,090	24.22	4,500	1,090	24.22	100.00
5	10,000	1,880	18.80	8,500	1,880	22.12	85.00
6	8,000	1,280	16.00	6,500	1,280	19.69	81.25
7	11,500	2,880	25.04	12,000	2,880	24.00	104.35
8	22,000	3,860	17.55	15,000	3,860	25.73	68.18
9	48,000	12,630	26.31	52,000	12,630	24.29	108.33
10	35,000	2,330	6.66	7,700	2,330	30.26	22.00
11	11,500	2,490	21.65	9,500	2,490	26.21	82.61
12	26,000	6,920	26.62	31,000	6,920	22.32	119.23
13	17,500	4,900	28.00	17,500	4,900	28.00	100.00
14	8,500	1,860	21.88	10,000	1,860	18.60	117.65
15	6,000	1,340	22.33	4,250	1,340	31.53	70.83
16	13,500	2,880	21.33	11,800	2,880	24.41	87.41
17	6,500	1,690	26.00	7,000	1,690	24.14	107.69
18	10,500	1,760	16.76	7,800	1,760	22.56	74.28
19	15,500	2,590	16.71	12,000	2,590	21.58	77.42
20	8,500	2,170	25.53	7,000	2,170	31.00	82.35
21	10,750	2,090	19.44	8,000	2,090	26.12	74.42
22	7,200	1,360	18.89	6,800	1,360	20.00	94.44
23	5,500	1,140	20.73	4,500	1,000	22.22	81.82
24	4,150	710	17.11	3,500	670	19.14	84.34
25	70,000	11,960	17.09	60,000	10,910	18.18	85.71
26	55,000	10,700	19.45	61,500	8,900	14.47	111.82
27	7,500	1,010	13.47	5,250	1,010	19.24	70.00
28	6,000	1,060	17.67	4,500	1,060	23.56	75.00
29	7,000	1,530	21.86	7,000	1,530	21.86	100.00
30	12,500	2,320	18.56	10,500	2,320	22.10	84.00
31	14,000	2,630	18.79	11,500	2,630	22.87	82.14
32	180,000	38,010	21.12	150,000	38,010	25.34	83.33
33	140,000	29,490	21.06	122,000	29,490	24.17	87.14
34	800,000	159,750	19.97	470,000	159,750	33.99	58.75
35	190,000	50,660	26.66	150,000	50,550	33.70	78.95

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
San Diego County—Continued							
36 ------	$4,700	$860	18.30	$4,250	$860	20.24	90.43
37 ------	4,500	380	8.44	3,500	380	10.86	77.78
38 ------	12,700	2,220	17.48	9,500	2,220	23.37	74.80
39 ------	15,000	3,510	23.40	13,000	3,510	27.00	86.67
40 ------	7,500	1,630	21.73	6,000	1,630	27.17	80.00
41 ------	9,850	1,610	16.36	9,000	1,650	18.33	91.37
42 ------	12,500	2,530	20.24	10,000	2,530	25.30	80.00
43 ------	14,500	2,610	18.00	12,500	2,610	20.88	86.21
44 ------	15,000	2,680	17.87	10,600	2,680	25.28	70.67
45 ------	10,500	2,010	19.14	8,200	2,010	24.51	78.10
46 ------	19,500	3,810	19.54	13,400	3,810	28.43	68.72
47 ------	8,750	2,140	24.46	9,000	2,140	23.78	102.86
48 ------	8,800	2,480	28.18	7,500	2,420	32.27	85.23
49 ------	10,900	2,600	23.85	9,250	2,600	28.11	84.86
50 ------	58,700	9,920	16.90	65,000	9,920	15.26	110.73
51 ------	16,500	2,640	16.00	12,500	2,310	18.48	75.76
52 ------	19,500	4,070	20.87	16,500	3,540	21.45	84.62
53 ------	10,500	2,390	22.76	7,500	1,920	25.60	71.43
54 ------	140,000	35,590	25.42	244,500	35,590	14.56	174.64
55 ------	9,750	2,610	26.77	14,250	2,610	18.32	146.15
56 ------	15,000	2,970	19.80	11,250	2,970	26.40	75.00
57 ------	3,500	1,940	55.43	9,000	1,810	20.11	257.14
58 ------	10,000	4,790	47.90	10,000	4,800	48.00	100.00
59 ------	12,500	1,570	12.56	6,500	1,320	20.31	52.00
60 ------	500	290	58.00	2,400	260	10.83	480.00
Totals -----	$2,263,750	$476,440	21.05	$1,855,700	$407,640	21.97	81.97
San Francisco County							
1 ------	$150,000	$138,700	92.47	$190,000	$138,700	73.00	126.67
2 ------	400,000	153,620	38.41	300,000	155,870	51.96	75.00
3 ------	475,000	204,640	43.08	450,000	204,640	45.48	94.74
4 ------	50,000	33,200	66.40	65,000	33,200	51.08	130.00
5 ------	200,000	120,030	60.02	200,000	120,030	60.02	100.00
6 ------	200,000	68,480	34.24	100,000	68,480	68.48	50.00
7 ------	120,000	35,930	29.94	110,000	35,930	32.66	91.67
8 ------	150,000	69,830	46.55	165,000	69,830	42.32	110.00
9 ------	805,000	300,970	37.39	690,000	242,470	35.14	85.71
10 ------	335,000	111,080	31.16	325,000	90,830	27.95	97.01
11 ------	95,000	33,970	35.76	90,000	33,970	37.74	94.74
12 ------	10,500	1,990	18.95	11,500	1,990	17.30	109.52
13 ------	13,000	1,850	14.23	12,500	1,850	14.80	96.15
14 ------	10,000	1,850	18.50	9,000	1,850	20.56	90.00
15 ------	7,500	320	4.27	6,500	320	4.92	86.67
16 ------	8,250	900	10.91	8,500	900	10.59	103.03
17 ------	9,000	1,250	13.89	8,000	1,250	15.62	88.89
18 ------	11,000	2,180	19.82	13,000	2,180	16.77	118.18
19 ------	9,750	1,300	13.33	9,500	1,300	13.68	97.44
20 ------	14,500	2,190	15.10	15,000	2,190	14.60	103.45
21 ------	7,650	720	9.41	7,000	720	10.28	91.53
22 ------	32,500	8,780	27.02	25,000	8,780	35.12	76.92
23 ------	17,000	3,190	18.76	19,000	3,190	16.79	111.76
24 ------	13,500	1,520	11.26	14,000	1,520	10.86	103.70
25 ------	13,500	1,970	14.59	13,000	1,970	15.15	96.30
26 ------	12,750	1,680	13.18	11,000	1,680	15.27	86.27
27 ------	15,500	2,070	13.35	12,500	2,070	16.56	80.64
28 ------	6,000	730	12.17	7,000	730	10.43	116.67
29 ------	13,500	1,310	9.70	12,300	1,310	10.65	91.11
30 ------	7,000	750	10.71	9,500	750	7.89	135.71
31 ------	3,350	370	11.04	4,250	370	8.70	126.86
32 ------	28,500	5,660	19.86	24,000	4,780	19.92	84.21
33 ------	55,000	19,500	35.45	64,000	16,500	25.78	116.36
34 ------	26,500	7,560	28.53	22,000	6,310	28.68	83.02
35 ------	24,500	3,600	14.69	16,000	2,760	17.25	65.31

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
San Francisco County—Continued							
36	$120,000	$36,040	30.03	$130,000	$26,350	20.27	108.33
37	22,000	3,130	14.23	19,000	3,130	16.47	86.36
38	20,000	5,240	26.20	16,000	5,240	32.75	80.00
39	10,500	2,210	21.05	9,250	2,210	23.89	88.10
40	12,000	2,860	23.83	13,500	2,860	21.18	112.50
41	37,500	6,090	16.24	32,000	6,090	19.03	85.33
42	55,000	17,910	32.56	48,000	14,610	30.44	87.27
43	8,500	1,490	17.53	8,350	1,490	17.84	98.24
44	11,000	1,640	14.91	9,500	1,640	17.26	86.36
45	10,500	2,000	19.05	10,500	2,000	19.05	100.00
46	12,250	1,930	17.16	11,500	1,930	16.78	93.88
47	15,000	2,160	14.40	14,000	2,160	15.43	93.33
48	13,000	1,980	15.23	12,250	1,980	16.16	94.23
49	12,750	2,160	16.94	12,000	2,160	18.00	94.12
50	11,500	2,190	19.04	9,500	2,190	23.05	82.61
51	17,000	3,120	18.35	18,750	3,120	16.64	110.29
52	13,500	2,350	17.41	12,500	2,350	18.80	92.59
53	11,250	1,380	12.27	8,750	1,380	15.77	76.42
54	25,000	5,390	21.56	28,250	5,390	19.08	113.00
55	85,000	41,090	48.34	131,000	41,090	31.37	154.12
56	450,000	201,950	44.88	320,500	112,950	35.24	71.22
57	150,000	54,930	36.62	153,500	52,940	34.49	102.33
58	115,000	23,750	20.65	105,000	23,750	22.62	91.30
Totals	$4,588,500	$1,766,680	38.50	$4,172,650	$1,580,230	37.87	90.94
San Joaquin County							
1	$75,000	$21,595	28.79	$105,000	$32,680	31.12	140.00
2	20,000	6,155	30.78	22,500	6,155	27.36	112.50
3	97,500	33,605	34.47	95,000	35,905	37.79	97.44
4	11,500	1,725	15.00	8,000	1,725	21.56	69.56
5	9,000	1,540	17.11	8,000	1,540	19.25	88.89
6	11,000	2,765	25.14	9,000	2,765	30.72	81.82
7	29,000	10,195	35.16	30,000	10,195	33.98	103.45
8	110,000	51,130	46.48	180,000	51,130	28.40	163.64
9	90,000	43,830	48.70	90,000	43,830	48.70	100.00
10	105,000	37,460	35.68	130,000	37,460	28.82	123.81
11	8,950	2,520	28.16	8,500	2,520	29.65	94.97
12	10,900	3,100	28.44	11,500	3,100	26.96	105.50
13	10,000	2,370	23.70	9,000	2,370	26.33	90.00
14	15,000	5,390	35.93	18,500	5,390	29.14	123.33
15	14,500	3,090	21.31	14,500	3,090	21.31	100.00
16	9,500	2,420	25.47	8,500	2,420	28.47	89.47
17	12,000	3,110	25.92	12,000	3,110	25.92	100.00
18	10,500	2,380	22.67	10,000	2,380	23.80	95.24
19	10,000	2,385	23.85	12,000	2,385	19.88	120.00
20	11,000	2,590	23.55	12,000	2,590	21.58	109.09
21	20,000	6,610	33.05	22,500	6,610	29.38	112.50
22	8,000	1,030	12.88	6,500	1,030	15.85	81.25
23	6,500	2,700	41.54	8,000	2,700	33.75	123.08
24	5,500	1,100	20.00	5,000	1,100	22.00	90.91
25	4,750	1,050	22.11	3,600	870	24.17	75.79
26	6,750	1,300	19.26	6,000	1,300	21.67	88.89
27	8,500	2,285	26.88	7,500	2,285	30.47	88.24
28	5,250	855	16.29	4,250	855	20.12	80.95
29	6,250	1,285	20.56	5,750	1,285	22.35	92.00
30	9,500	2,590	27.26	10,000	2,590	25.90	105.26
31	9,250	2,410	26.05	9,250	2,410	26.05	100.00
32	6,000	500	8.33	3,750	500	13.33	62.50
33	30,000	11,405	38.02	50,000	12,860	25.72	166.67
34	10,000	4,075	40.75	21,500	4,145	19.28	215.00
35	20,000	5,410	27.05	13,000	5,410	41.62	65.00

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
San Joaquin County—Continued							
36 ______	$7,500	$1,985	26.47	$12,000	$1,985	16.54	160.00
37 ______	30,000	6,010	20.03	19,000	5,035	26.50	63.33
38 ______	25,000	10,460	41.84	34,000	10,460	30.76	136.00
Totals _____	$889,100	$302,415	34.01	$1,035,600	$316,170	30.53	116.48
San Luis Obispo County							
1 ______	$9,500	$1,840	19.37	$9,000	$1,840	20.44	94.74
2 ______	7,000	1,470	21.00	7,000	1,470	21.00	100.00
3 ______	4,750	1,070	22.53	4,800	1,070	22.29	101.05
4 ______	5,400	850	15.74	4,800	850	17.71	88.89
5 ______	25,000	3,160	12.64	16,000	3,160	19.75	64.00
6 ______	48,000	16,400	34.17	70,000	16,400	23.43	145.83
7 ______	12,000	1,970	16.42	11,000	1,970	17.91	91.67
8 ______	7,950	1,390	17.48	7,300	1,390	19.04	91.82
9 ______	8,000	1,450	18.13	7,500	1,000	13.33	93.75
10 ______	9,000	1,500	16.67	7,500	1,340	17.87	83.33
11 ______	17,100	3,190	18.65	12,500	3,190	25.52	73.10
12 ______	47,500	12,690	26.72	55,000	12,690	23.07	115.79
13 ______	10,000	2,000	20.00	7,750	2,000	25.81	77.50
14 ______	5,500	1,220	22.18	3,750	1,220	32.53	68.18
15 ______	6,500	3,380	52.00	15,000	3,380	22.53	230.77
16 ______	90,000	25,090	27.88	77,500	25,090	32.37	86.11
17 ______	32,000	14,620	45.69	42,500	14,620	34.40	132.81
18 ______	40,000	10,750	26.88	37,500	10,750	28.67	93.75
19 ______	12,500	2,200	17.60	10,500	2,200	20.95	84.00
20 ______	9,500	1,640	17.26	8,500	1,640	19.29	89.47
21 ______	9,500	1,520	16.00	9,000	1,520	16.89	94.74
22 ______	14,000	2,140	15.29	12,500	2,140	17.12	89.28
23 ______	10,500	1,810	17.24	11,000	1,810	16.45	104.76
24 ______	13,500	2,120	15.70	12,300	2,120	17.24	91.11
25 ______	11,600	640	5.52	3,150	640	20.32	27.16
26 ______	52,000	5,950	11.44	41,000	5,950	14.51	78.85
27 ______	12,000	1,600	13.33	11,000	1,600	14.54	91.67
28 ______	87,500	27,050	30.91	107,000	27,050	25.28	122.28
29 ______	10,000	2,740	27.40	14,400	2,740	19.03	144.00
Totals _____	$627,800	$153,450	24.44	$636,750	$152,840	24.00	101.43
San Mateo County							
1 ______	$62,500	$12,450	19.92	$45,000	$8,300	18.44	72.00
2 ______	87,500	21,480	24.55	87,500	14,300	16.34	100.00
3 ______	198,000	63,800	32.22	130,500	24,700	18.93	65.91
4 ______	18,500	3,645	19.70	17,500	2,950	16.86	94.59
5 ______	17,500	3,750	21.43	12,000	2,265	18.88	68.57
6 ______	23,500	5,095	21.68	3,500	475	13.57	14.89
7 ______	14,250	3,630	25.47	11,000	2,550	23.18	77.19
8 ______	15,750	2,585	16.41	10,500	1,725	16.43	66.67
9 ______	13,500	3,060	22.67	12,000	2,035	16.96	88.89
10 ______	225,000	27,960	12.43	104,000	18,600	17.88	46.22
11 ______	33,200	9,900	29.82	33,000	6,700	20.30	99.40
12 ______	119,500	20,280	16.97	127,500	13,500	10.59	106.69
13 ______	190,000	35,250	18.55	150,000	23,500	15.67	78.95
14 ______	45,000	10,200	22.67	50,000	6,800	13.60	111.11
15 ______	110,000	7,260	6.60	45,000	5,500	12.22	40.91
16 ______	30,000	5,450	18.17	32,000	3,650	11.41	106.67
17 ______	55,000	11,250	20.45	65,000	6,400	9.85	118.18
18 ______	52,500	12,750	24.29	65,000	8,500	13.08	123.81
19 ______	110,000	25,620	23.29	130,000	17,000	13.08	118.18
20 ______	36,000	14,610	40.58	58,000	9,750	16.81	161.11

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

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San Mateo County—Continued							
21 ------	$120,000	$24,300	20.25	$95,000	$16,200	17.05	79.17
22 ------	20,000	3,810	19.05	13,000	2,550	19.62	65.00
23 ------	12,500	2,790	22.32	10,000	1,850	18.50	80.00
24 ------	11,750	3,090	26.30	9,500	2,050	21.58	80.85
25 ------	29,000	8,475	29.22	28,000	4,850	17.32	96.55
26 ------	24,750	4,830	19.52	20,500	3,225	15.73	82.83
27 ------	32,460	7,095	21.86	27,500	4,300	15.64	84.72
28 ------	24,900	5,580	22.41	20,000	3,700	18.50	80.32
29 ------	7,500	1,350	18.00	6,000	900	15.00	80.00
30 ------	20,000	3,480	17.40	15,500	2,250	14.52	77.50
31 ------	19,500	3,600	18.46	2,400	400	16.67	12.31
32 ------	12,500	2,690	21.52	10,000	1,775	17.75	80.00
33 ------	16,500	2,850	17.27	10,000	1,900	19.00	60.61
34 ------	24,950	5,310	21.28	24,000	3,500	14.58	96.19
35 ------	29,000	6,300	21.72	21,000	4,200	20.00	72.41
36 ------	20,750	4,785	23.06	19,500	3,200	16.41	93.98
37 ------	233,000	120,420	51.68	323,400	83,260	25.74	138.80
38 ------	25,000	7,500	30.00	18,500	6,000	32.43	74.00
39 ------	14,000	2,145	15.32	9,800	1,425	14.54	70.00
Totals -----	$2,155,260	$520,425	24.15	$1,872,600	$326,735	17.45	86.89
Santa Barbara County							
1 ------	$38,500	$14,220	36.94	$38,500	$14,220	36.94	100.00
2 ------	37,350	12,810	24.30	55,000	12,810	23.29	147.26
3 ------	220,000	64,380	29.26	175,000	64,380	36.79	79.54
4 ------	10,500	4,950	47.14	15,000	4,950	33.00	142.86
5 ------	14,200	2,930	20.63	11,000	2,930	26.64	77.46
6 ------	12,000	2,910	24.25	12,500	2,910	23.28	104.17
7 ------	10,500	2,410	22.95	12,500	2,410	19.28	119.05
8 ------	27,500	4,620	16.80	25,000	4,370	17.48	90.91
9 ------	16,000	2,790	17.44	13,500	2,790	20.67	84.38
10 ------	9,500	2,460	25.89	9,500	2,460	25.89	100.00
11 ------	12,000	2,830	23.58	17,000	2,830	14.00	141.67
12 ------	15,500	2,000	12.90	8,000	2,070	25.88	51.61
13 ------	25,500	5,600	21.96	20,000	5,600	28.00	78.43
14 ------	27,500	5,600	20.36	20,500	5,600	27.32	74.54
15 ------	10,500	1,500	14.29	7,000	1,500	21.43	66.67
16 ------	11,500	2,130	18.52	8,800	2,130	24.20	76.52
17 ------	50,000	11,910	23.82	45,000	11,910	26.47	90.00
18 ------	65,000	7,320	11.26	25,000	7,020	28.08	38.46
19 ------	10,500	2,490	23.71	10,500	2,490	23.71	100.00
20 ------	11,000	1,880	17.09	9,500	1,880	19.79	86.36
21 ------	10,000	1,850	18.50	10,000	1,850	18.50	100.00
22 ------	25,000	6,120	24.48	20,000	6,120	30.60	80.00
23 ------	7,000	2,750	39.29	10,500	2,750	26.19	150.00
24 ------	47,000	20,860	44.38	125,000	20,860	16.69	265.96
25 ------	40,500	20,310	50.15	55,000	22,480	40.87	135.80
26 ------	11,500	2,750	23.91	9,250	2,750	29.73	80.43
27 ------	13,000	3,110	23.92	10,000	3,110	31.10	76.92
28 ------	10,000	2,640	26.40	10,500	2,640	25.14	105.00
29 ------	9,000	2,400	26.67	10,000	2,400	24.00	111.11
30 ------	11,500	3,670	31.91	12,500	3,670	29.36	108.70
31 ------	15,000	4,900	32.67	21,000	4,900	23.33	140.00
32 ------	16,000	3,840	24.00	12,000	3,340	27.83	75.00
33 ------	77,500	16,240	20.95	72,500	16,240	22.40	93.55
34 ------	60,000	12,130	20.22	56,000	12,130	21.66	93.33
Totals -----	$988,050	$261,310	26.45	$973,050	$262,500	26.98	98.48

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Santa Clara County							
1 ______	$14,850	$3,900	26.26	$15,500	$3,780	24.39	104.38
2 ______	19,750	4,280	21.67	15,500	3,760	24.26	78.48
3 ______	22,500	5,600	24.89	22,500	5,600	24.89	100.00
4 ______	19,450	7,020	36.09	16,000	1,080	6.75	82.26
5 ______	14,500	3,300	22.76	12,500	3,290	26.32	86.21
6 ______	30,000	4,820	16.07	22,500	4,200	18.67	75.00
7 ______	5,500	970	17.64	3,500	970	27.71	63.64
8 ______	8,000	2,030	25.38	8,000	1,970	24.62	100.00
9 ______	8,500	1,760	20.71	8,000	1,420	17.75	94.12
10 ______	11,000	1,730	15.73	8,500	1,670	19.65	77.27
11 ______	10,250	1,880	18.34	8,500	1,820	21.41	82.93
12 ______	6,500	640	9.85	2,600	400	15.38	40.00
13 ______	11,000	2,790	25.36	10,500	2,700	25.71	95.45
14 ______	12,500	3,130	25.04	11,000	3,030	27.54	88.00
15 ______	8,950	2,860	31.96	9,000	2,860	31.78	100.56
16 ______	12,950	2,550	19.69	12,000	2,550	21.25	92.66
17 ______	10,000	1,890	18.90	9,000	1,770	19.67	90.00
18 ______	7,500	1,300	17.33	6,500	1,190	18.31	86.67
19 ______	9,350	2,900	31.02	11,000	3,250	29.55	117.65
20 ______	9,500	2,840	29.89	12,500	2,260	18.08	131.58
21 ______	9,850	2,970	30.15	9,750	2,970	30.46	98.98
22 ______	7,950	1,580	19.87	6,500	1,420	21.85	81.76
23 ______	4,950	1,840	37.17	7,000	1,840	26.28	141.41
24 ______	12,500	2,600	20.80	11,000	2,600	23.64	88.00
25 ______	12,250	2,530	20.65	11,000	2,480	22.54	89.80
26 ______	12,950	3,600	27.80	12,000	3,600	30.00	92.66
27 ______	15,250	2,790	18.30	15,000	2,650	17.67	98.36
28 ______	16,500	3,320	20.12	17,500	3,210	18.34	106.06
29 ______	13,500	2,250	16.67	10,500	2,250	21.43	77.78
30 ______	12,500	2,590	20.72	11,500	2,490	21.65	92.00
31 ______	14,250	2,400	16.84	13,000	2,400	18.46	91.23
32 ______	21,000	5,160	24.57	3,000	600	20.00	14.29
33 ______	14,250	3,600	25.26	16,000	3,600	22.50	112.28
34 ______	50,000	17,460	34.92	40,000	16,500	41.25	80.00
35 ______	36,000	8,830	24.53	42,500	8,430	19.84	118.06
36 ______	70,000	21,200	30.29	65,000	20,570	31.65	92.86
37 ______	76,500	20,450	26.80	90,000	17,850	19.83	117.65
38 ______	61,500	27,150	44.15	70,000	27,080	38.68	113.82
39 ______	22,500	9,740	43.29	50,000	7,820	15.64	222.22
40 ______	150,000	9,520	6.35	210,000	9,280	4.42	140.00
41 ______	200,000	93,170	46.59	250,000	93,170	37.27	125.00
42 ______	70,000	26,500	37.86	49,000	26,000	53.06	70.00
43 ______	85,000	20,390	23.99	57,500	20,090	34.94	67.65
44 ______	50,000	13,200	26.40	65,000	13,200	20.31	130.00
45 ______	120,000	16,460	13.71	68,000	16,460	24.21	56.67
46 ______	52,500	13,260	25.26	58,000	12,740	21.96	110.48
47 ______	18,000	5,850	32.50	20,000	3,620	18.10	111.11
48 ______	15,000	8,500	56.67	11,500	8,140	70.78	76.67
49 ______	2,500	1,130	45.20	5,000	1,130	22.60	200.00
50 ______	26,700	4,900	18.35	14,500	4,230	29.18	54.31
51 ______	82,800	12,710	15.35	47,000	12,710	27.04	56.76
52 ______	83,500	40,930	49.02	138,000	38,630	27.99	165.27
53 ______	115,000	29,950	26.04	134,000	21,800	16.27	116.52
54 ______	123,000	89,680	72.91	281,000	88,140	31.37	228.46
55 ______	200,000	92,380	46.19	405,800	86,260	21.26	202.90
Totals _____	$2,130,750	$678,780	31.86	$2,540,650	$635,530	25.01	119.24

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Santa Cruz County							
1 ______	$39,900	$11,630	29.15	$42,000	$8,630	20.55	105.26
2 ______	27,000	8,590	31.81	25,000	6,380	25.52	92.59
3 ______	51,700	16,470	31.86	48,000	11,080	23.08	92.84
4 ______	3,700	1,280	34.59	3,650	810	22.19	98.65
5 ______	3,500	880	25.14	3,750	560	14.93	107.14
6 ______	450	200	44.44	700	130	18.57	155.56
7 ______	9,000	1,800	20.00	10,500	1,250	11.90	116.67
8 ______	11,500	3,280	28.52	12,000	2,050	17.08	104.35
9 ______	9,000	2,400	26.67	9,000	1,500	16.67	100.00
10 ______	18,500	4,960	26.81	17,500	3,030	17.31	94.59
11 ______	10,000	3,040	30.40	9,500	1,910	20.10	95.00
12 ______	9,000	3,000	33.33	8,000	1,610	20.12	88.89
13 ______	9,500	3,000	31.58	10,000	1,880	18.80	105.26
14 ______	8,950	3,320	37.09	11,000	2,080	18.91	122.91
15 ______	25,000	7,040	28.16	40,000	4,410	11.02	160.00
16 ______	4,750	1,600	33.68	5,850	1,010	17.26	123.16
17 ______	6,000	2,520	42.00	6,500	1,580	24.31	108.33
18 ______	9,750	2,840	29.13	11,000	1,240	11.27	112.82
19 ______	8,000	2,760	34.50	9,200	1,870	20.33	115.00
20 ______	40,000	22,200	55.50	54,000	13,880	25.70	135.00
21 ______	16,000	6,840	42.75	25,000	4,400	17.60	156.25
22 ______	7,500	2,100	28.00	8,000	1,280	16.00	106.67
23 ______	12,000	4,880	40.67	13,500	2,760	20.44	112.50
24 ______	14,000	5,680	40.57	18,500	3,530	19.08	132.14
25 ______	5,200	1,080	20.77	5,000	710	14.20	96.15
26 ______	9,000	3,320	36.89	9,500	2,080	21.89	105.56
27 ______	6,500	2,200	33.85	7,500	1,380	18.40	115.38
28 ______	5,500	1,720	31.27	4,500	880	19.56	81.82
29 ______	10,000	3,800	38.00	11,000	2,380	21.64	110.00
30 ______	17,500	7,520	42.97	18,500	4,630	25.03	105.71
31 ______	9,750	3,280	33.64	10,000	2,050	20.50	102.56
32 ______	24,000	14,920	62.17	29,500	8,400	28.47	122.92
33 ______	15,000	9,000	60.00	17,500	4,700	26.86	116.67
34 ______	23,283	18,340	78.77	23,000	8,100	35.22	98.78
35 ______	98,125	50,460	51.42	98,100	27,520	28.05	99.97
36 ______	43,750	18,700	42.74	44,750	11,000	24.58	102.29
37 ______	18,500	10,350	55.95	19,000	4,700	24.74	102.70
Totals _____	$640,808	$267,000	41.67	$700,000	$157,390	22.48	109.24
Shasta County							
1 ______	$14,289	$3,315	23.20	$14,600	$3,000	20.55	102.18
2 ______	9,440	2,470	26.17	10,500	2,350	22.38	111.23
3 ______	14,750	3,565	24.17	12,000	3,450	28.75	81.36
4 ______	6,500	2,500	38.46	9,000	2,375	26.39	138.46
5 ______	16,000	3,380	21.13	18,000	3,230	17.94	112.50
6 ______	6,000	1,670	27.83	8,800	1,580	17.95	146.67
7 ______	80,000	17,875	22.34	57,500	12,900	22.43	71.88
8 ______	16,380	3,170	19.35	28,750	2,370	8.24	175.52
9 ______	28,000	8,380	29.93	44,000	11,330	25.75	157.14
10 ______	6,500	3,200	49.23	9,300	1,120	12.04	143.08
11 ______	12,500	4,640	37.12	31,000	3,530	11.39	248.00
Totals _____	$210,359	$54,165	25.75	$243,450	$47,235	19.40	115.73

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Sierra County							
1	$33,000	$9,000	27.27	$40,000	$9,000	22.50	121.21
2	9,500	2,370	24.95	9,250	2,370	25.62	97.37
3	10,750	2,210	20.56	10,000	2,210	22.10	93.02
4	7,500	7,540	100.53	7,000	6,540	93.43	93.33
5	4,000	1,580	39.50	4,750	1,580	33.26	118.75
6	7,500	1,565	20.87	6,500	1,565	24.08	86.67
7	14,500	3,550	24.48	10,800	3,550	32.87	74.48
8	3,500	1,700	48.57	3,500	1,700	48.57	100.00
9	17,500	10,075	57.57	24,500	10,075	41.12	140.00
Totals	$107,750	$39,590	36.74	$116,300	$38,590	33.18	107.94
Siskiyou County							
1	$7,400	$1,695	22.91	$9,000	$1,695	18.83	121.62
2	12,800	1,935	15.12	11,500	1,935	16.83	89.84
3	7,200	1,680	23.33	6,000	1,680	28.00	83.33
4	13,000	3,595	27.65	13,000	3,595	27.65	100.00
5	7,662	1,450	18.92	600	150	25.00	7.83
6	22,000	5,475	24.89	25,000	5,475	21.90	113.64
7	20,000	3,255	16.28	16,500	3,255	19.73	82.50
8	20,000	3,950	19.75	20,000	3,950	19.75	100.00
9	20,000	3,190	15.95	15,000	3,485	23.23	75.00
Totals	$130,062	$26,225	20.16	$136,600	$25,220	18.46	105.03
Solano County							
1	$35,000	$4,350	12.43	$30,000	$4,350	14.50	85.71
2	26,000	4,750	18.27	33,000	4,750	14.39	126.92
3	60,000	16,000	26.67	60,000	16,000	26.67	100.00
4	95,000	22,100	23.26	125,000	19,050	15.24	131.58
5	68,000	19,000	27.94	94,000	17,200	18.30	138.24
6	145,000	43,300	29.86	175,000	38,900	22.23	120.69
7	26,000	12,450	47.88	60,000	12,450	20.75	230.77
8	40,000	11,500	28.75	50,000	11,300	22.60	125.00
9	17,916	3,810	21.27	17,000	3,810	22.41	94.89
10	24,233	5,660	23.36	24,000	5,660	23.58	99.04
11	14,208	2,910	20.48	12,500	2,910	23.28	87.98
12	28,000	4,610	16.46	25,000	4,610	18.44	89.29
13	17,500	3,210	18.34	12,500	3,210	25.68	71.43
14	15,000	3,700	24.67	16,000	3,700	23.12	106.67
15	20,000	2,980	14.90	17,500	2,980	17.03	87.50
16	20,000	4,150	20.75	17,000	4,150	24.41	85.00
17	17,000	2,980	17.53	11,000	2,980	27.09	64.71
18	13,000	2,620	20.15	12,000	2,620	21.83	92.31
19	12,000	2,650	22.08	12,000	2,550	21.25	100.00
20	62,000	15,050	24.27	61,000	14,780	24.23	98.39
Totals	$755,857	$187,780	24.84	$864,500	$177,960	20.59	114.37
Sonoma County							
1	$35,000	$6,095	17.41	$22,500	$6,095	27.09	64.29
2	8,750	2,325	26.57	8,750	2,325	26.57	100.00
3	7,950	1,770	22.26	7,500	1,770	23.60	94.34
4	6,750	1,615	23.93	6,500	1,615	24.85	96.30
5	110,000	36,795	33.45	160,000	34,100	21.31	145.45
6	170,000	78,720	46.31	370,000	87,000	23.51	217.65
7	75,000	24,045	32.06	100,000	24,245	24.24	133.33
8	42,500	25,185	59.26	92,500	23,170	25.05	217.65
9	90,000	14,725	16.36	62,500	14,725	23.56	69.44
10	13,500	3,180	23.56	12,500	3,170	25.36	92.59
11	9,000	1,980	22.00	7,500	1,850	24.67	83.33
12	12,000	3,105	25.88	12,500	2,895	23.16	104.17
13	15,500	3,685	23.77	16,500	3,920	23.76	106.45
14	9,000	2,535	28.17	8,750	2,310	26.40	97.22
15	18,500	4,050	21.89	17,500	4,350	24.86	94.59

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Sonoma County—Continued							
16	$18,000	$3,595	19.97	$14,500	$3,410	23.52	80.56
17	16,000	3,695	23.09	14,000	3,515	25.11	87.50
18	12,500	3,695	29.56	11,000	3,695	33.59	88.00
19	10,500	3,150	30.00	9,500	3,150	33.16	90.48
20	13,000	4,020	30.92	12,500	4,020	32.16	96.15
21	24,500	8,775	35.82	30,000	8,775	29.25	122.45
22	15,000	3,220	21.47	12,000	3,220	26.83	80.00
23	18,000	4,510	25.06	17,000	4,510	26.53	94.44
24	13,750	2,870	20.87	13,000	2,870	22.08	94.55
25	10,800	2,375	21.99	9,000	2,375	26.39	83.33
26	20,000	1,600	8.00	20,600	1,500	7.28	103.00
27	2,500	665	26.60	3,000	665	22.17	120.00
28	15,000	2,390	15.93	9,500	2,390	25.16	63.33
29	45,000	7,415	16.48	65,400	7,400	11.31	145.33
Totals	$858,000	$261,785	30.51	$1,150,500	$267,275	23.23	134.09
Stanislaus County							
1	$22,000	$3,650	16.59	$18,000	$3,650	20.28	81.82
2	17,000	2,910	17.12	14,000	2,510	17.93	82.35
3	62,500	2,650	4.24	45,200	2,650	5.86	72.32
4	300,000	59,800	19.93	425,000	59,800	14.07	141.67
5	21,500	3,190	14.84	22,000	3,190	14.50	102.33
6	12,250	2,040	16.65	10,750	2,035	18.93	87.76
7	13,000	2,160	16.62	12,500	2,155	17.24	96.15
8	13,000	2,180	16.77	12,500	2,185	17.48	96.15
9	9,000	1,740	19.33	9,500	1,735	18.26	105.56
10	9,000	1,300	14.44	7,250	1,300	17.93	80.56
11	11,500	1,720	14.96	9,000	1,725	19.17	78.26
12	7,250	1,520	20.97	8,500	1,520	17.88	117.24
13	10,000	2,650	25.24	12,500	2,650	21.20	119.05
14	7,000	890	12.71	5,000	885	17.70	71.43
15	7,000	1,430	20.43	7,500	1,435	19.13	107.14
16	7,250	1,030	14.21	5,000	1,035	20.70	68.97
17	18,000	1,760	9.78	10,000	1,765	17.65	55.56
18	5,500	1,800	32.73	7,000	1,800	25.71	127.27
19	2,000	550	27.50	1,750	550	31.43	87.50
20	6,000	700	11.67	4,500	700	15.56	75.00
21	7,250	1,220	16.83	6,500	1,220	18.77	89.66
22	7,750	820	10.58	6,000	820	13.67	77.42
23	7,500	920	12.27	4,800	920	19.17	64.00
24	14,700	5,000	34.01	12,500	5,000	40.00	85.03
25	38,000	11,760	30.95	42,000	11,760	28.00	110.53
26	23,500	4,850	20.64	20,000	4,850	24.25	85.11
27	13,500	2,100	15.56	11,250	2,100	18.67	83.33
28	14,200	2,350	16.55	12,500	2,350	18.80	88.03
29	7,800	1,680	21.54	8,250	1,675	20.30	105.77
30	12,000	2,700	22.50	13,500	2,700	20.00	112.50
31	9,600	1,510	15.73	7,500	1,510	20.13	78.13
32	38,000	10,200	26.84	44,800	10,200	22.77	117.89
33	56,250	19,640	34.92	76,500	19,635	25.67	136.00
34	32,500	6,020	18.52	24,400	6,020	24.67	75.08
Totals	$843,800	$166,440	19.73	$937,950	$166,035	17.70	111.16

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Sutter County							
1 ------	$140,000	$29,650	21.18	$80,000	$25,000	31.25	57.14
2 ------	15,250	9.220	60.46	29,500	9.220	31.25	193.44
3 ------	12.500	3,950	31.60	14,750	3,950	26.78	118.00
4 ------	6,000	3,170	52.83	10.500	3,170	30.19	175.00
5 ------	11,000	3,025	27.50	10,000	3,025	30.25	90.91
6 ------	13,500	3,370	24.96	12,000	3,370	28.08	88.89
7 ------	6,000	1,490	24.83	5,000	1,490	29.80	83.33
8 ------	6,500	2.250	34.62	8,000	2,250	28.12	123.08
9 ------	7,500	2,225	29.67	8,500	2,225	26.18	113.33
10 ------	9,500	2,960	31.16	9,500	2,960	31.16	100.00
11 ------	8,500	2,815	33.12	8,500	2.815	33.12	100.00
12 ------	7,000	3,165	45.21	9,500	3,165	33.32	135.71
13 ------	16,800	7,315	43.54	21,000	7,315	34.83	125.00
14 ------	10,000	3,715	37.15	14,250	3,135	22.00	142.50
15 ------	10,000	3,295	32.95	8,500	3,135	36.88	85.00
16 ------	20,000	4,925	24.63	17,000	4,925	28.97	85.00
17 ------	118,800	15,610	13.14	55,000	15,610	28.38	46.30
18 ------	32,500	4,475	13.77	18,000	4,475	24.86	55.38
Totals -----	$451,350	$106,625	23.62	$339,500	$101,235	29.82	75.22
Tehama County							
1 ------	$35,000	$9,485	27.10	$42,000	$9,485	22.58	120.00
2 ------	18,500	3,150	17.03	20,000	3,150	15.75	108.11
3 ------	45,000	17,075	37.94	72,000	17,075	23.72	160.00
4 ------	15,000	3,025	20.17	15,500	3,025	19.52	103.33
5 ------	10,000	2,030	20.30	10,500	2,030	19.33	105.00
6 ------	6.500	1,010	15.54	7,500	1,010	13.47	115.38
7 ------	7,500	1,970	26.27	10,500	1,970	18.76	140.00
8 ------	8,000	1,220	15.25	8,500	1,160	13.65	106.25
9 ------	1,200	465	38.75	1,500	465	31.00	125.00
10 ------	6,000	1,595	26.58	7,500	1,570	20.93	125.00
11 ------	25,000	4,000	16.00	18,500	4,000	21.62	74.00
12 ------	100,000	38,135	38.14	98,500	24,535	24.91	98.50
13 ------	4,500	1,280	28.44	6,000	1,280	21.33	133.33
Totals -----	$282,200	$84,440	29.92	$318,500	$70,755	22.22	112.86
Trinity County							
1 ------	$8,000	$2,270	28.38	$13,000	$2,270	17.46	162.50
2 ------	1.900	940	49.47	5,000	940	18.80	263.16
3 ------	7,000	1,045	14.93	7,000	1,045	14.93	100.00
4 ------	3,100	860	27.74	6,000	860	14.33	193.55
5 ------	8,500	1,620	19.06	1,350	1,620	120.00	----
6 ------	5,500	1,325	24.09	6,500	1,325	20.38	118.18
7 ------	4,000	780	19.50	4,500	780	17.33	112.50
8 ------	2,250	445	19.78	6,000	445	7.42	266.67
9 ------	15,000	3,790	25.27	25,000	3,790	15.16	166.67
10 ------	3,000	870	29.00	11,600	870	7.50	386.67
Totals -----	$58,250	$13,945	23.94	$85,950	$13,945	16.22	147.55
Tulare County							
1 ------	$51,000	$9,370	18.37	$48,000	$8,800	18.33	94.12
2 ------	111.726	25,465	22.79	88,000	24,025	27.30	78.76
3 ------	9,500	2,680	28.21	12,500	2,625	21.00	----
4 ------	10.000	2.285	22.85	9,000	2,235	24.83	90.00
5 ------	5,000	1,605	32.10	5,000	1,535	30.70	100.00
6 ------	4,750	855	18.00	4,000	835	20.88	84.21
7 ------	6,460	1,830	28.33	10,000	1,800	18.00	154.80
8 ------	11,592	4,130	35.63	16,500	4,095	24.82	142.34
9 ------	8,500	2.285	26.88	9,500	2,265	23.84	111.76
10 ------	5,000	1,690	33.80	5,500	1,665	30.27	110.00

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Value for 1951 as a Percent of Appraised Value for 1952 (7)*
Tulare County—Continued							
11	$4,750	$1,575	33.16	$4,000	$1,555	38.88	84.21
12	10,500	2,470	23.52	10,000	2,440	24.40	95.24
13	9,650	2,265	23.47	8,000	2,235	27.94	82.90
14	13,500	2,430	18.00	13,000	2,390	18.38	96.30
15	11,500	1,950	16.96	10,000	1,920	19.20	86.96
16	12,500	3,490	27.92	13,000	3,420	26.31	104.00
17	7,000	1,190	17.00	4,700	1,240	26.38	67.14
18	6,950	930	13.38	4,400	890	20.23	63.31
19	15,750	3,650	23.17	15,500	3,620	23.35	98.41
20	12,750	3,500	27.45	12,700	3,450	27.16	99.61
21	8,500	1,470	17.29	7,000	1,435	20.50	82.35
22	4,000	820	20.50	3,500	800	22.86	87.50
23	6,750	1,935	28.67	5,500	1,915	34.82	81.48
24	22,500	4,520	20.09	15,000	2,830	18.87	66.67
25	150,000	13,610	9.07	8,500	1,180	13.88	5.67
26	38,800	3,230	8.32	29,000	3,230	11.14	74.74
27	22,500	2,500	11.11	23,750	2,300	9.68	105.56
28	23,500	5,400	22.98	24,000	5,400	22.50	102.13
29	9,835	1,450	14.74	7,000	1,450	20.71	71.17
30	60,000	7,300	12.17	16,000	2,400	15.00	26.67
31	30,000	6,210	20.17	41,000	5,720	13.95	136.67
Totals	$704,763	$124,090	17.61	$483,550	$101,700	21.03	68.61
Tuolumne County							
1	$5,500	$1,710	31.09	$6,750	$1,440	21.33	122.73
2	25,000	11,440	45.76	29,000	11,130	38.38	116.00
Totals	$30,500	$13,150	43.11	$35,750	$12,570	35.16	117.21
Ventura County							
1	$15,000	$1,640	10.93	$11,000	$1,370	12.45	73.33
2	35,000	6,540	18.69	33,000	5,350	16.21	94.29
3	25,000	6,190	24.76	41,500	4,920	11.86	166.00
4	36,000	7,130	19.81	46,000	5,070	11.02	127.78
5	13,500	1,950	14.44	12,000	1,970	16.42	88.89
6	24,000	4,570	19.04	25,000	4,360	17.44	104.17
7	16,500	2,920	17.70	16,500	2,630	15.94	100.00
8	13,500	1,640	12.15	15,500	1,590	10.26	114.81
9	10,500	2,000	19.05	11,500	1,800	15.65	109.52
10	57,000	7,810	13.70	60,000	7,810	13.02	105.26
11	70,000	8,430	12.04	78,000	8,430	10.81	111.43
12	60,000	7,920	13.20	68,000	7,920	11.65	113.33
13	7,350	1,050	14.29	6,000	1,050	17.50	81.63
14	5,900	860	14.58	5,250	860	16.38	88.98
15	10,500	1,680	16.00	11,000	1,680	15.27	104.76
16	12,000	1,820	15.17	12,000	1,820	15.17	100.00
17	17,500	2,420	13.83	15,000	2,420	16.13	85.71
18	16,500	3,260	19.76	21,000	3,260	15.52	127.27
19	11,500	1,830	15.91	11,250	1,830	16.27	97.83
20	12,000	1,530	12.75	9,500	1,530	16.10	79.17
21	12,500	1,960	15.68	13,500	1,960	14.52	108.00
22	12,000	1,520	12.67	11,000	1,520	13.82	91.67
23	19,000	3,040	16.00	18,500	3,040	16.43	97.37
24	12,500	1,660	13.28	11,000	1,660	15.09	88.00
25	12,000	1,490	12.42	8,500	1,490	17.53	70.83
26	12,500	2,000	16.00	13,000	2,000	15.38	104.00
27	35,000	3,930	11.23	32,000	3,930	12.28	91.43
28	13,000	3,260	25.08	25,000	3,260	13.04	192.31
29	7,500	1,750	23.33	10,500	1,750	16.67	140.00
30	8,500	1,800	21.18	10,500	1,800	17.14	123.53

RATIOS OF ASSESSED VALUE TO APPRAISED VALUE FOR SAMPLE PARCELS OF REAL PROPERTY IN 55 COUNTIES, BASED ON APPRAISALS BY THE STATE BOARD OF EQUALIZATION FOR 1951 AND BY THE COMMITTEE FOR 1952—Continued

County and Appraisal Number	*Appraised Value—Committee Study (1)*	*Assessed Value (2)*	*Assessed Value as a Percent of Appraised Value (3)*	*Appraised Value—State Board of Equalization (4)*	*Assessed Value (5)*	*Assessed Value as a Percent of Appraised Value (6)*	*Appraised Valye for 1951 as a Percent of Appraised Value for 1952 (7)*
Ventura County—Continued							
31	$5,000	$490	9.80	$4,000	$490	12.25	80.00
32	60,000	6,650	11.08	33,500	6,650	19.85	55.83
33	20,000	3,870	19.35	17,000	3,870	22.76	85.00
34	75,000	18,560	24.75	80,000	17,530	21.91	106.67
35	40,000	5,220	13.05	30,000	5,220	17.40	75.00
36	8,500	750	8.82	6,000	750	12.50	70.59
37	13,000	2,120	16.31	13,000	2,120	16.31	100.00
38	10,000	1,240	12.40	8,000	1,240	15.50	80.00
39	9,500	1,350	14.21	10,000	1,350	13.50	105.26
40	7,750	850	10.97	6,500	850	13.08	83.87
41	8,500	1,360	16.00	7,500	1,360	18.13	88.24
42	9,250	1,020	11.03	6,750	1,020	15.11	72.97
43	3,950	390	9.87	3,000	390	13.00	75.95
44	12,500	1,610	12.88	9,500	1,610	16.95	76.00
45	12,000	1,490	12.42	9,750	1,490	15.28	81.25
46	200,000	23,040	11.52	237,000	23,040	9.72	118.50
47	6,500	450	6.92	5,900	450	7.63	90.77
48	75,000	7,740	10.32	60,400	7,740	12.81	80.53
49	28,000	3,660	13.07	25,000	3,660	14.64	89.29
50	53,000	4,300	8.11	21,000	3,440	16.38	39.62
Totals	$1,271,200	$181,760	14.30	$1,256,300	$174,350	13.88	98.83
Yolo County							
1	$20,000	$2,210	11.05	$15,500	$2,210	14.26	77.50
2	12,000	1,980	16.50	7,500	1,980	26.40	62.50
3	9,000	1,160	12.89	5,500	1,160	21.09	61.11
4	11,000	1,730	15.73	9,000	1,730	19.22	81.82
5	2,000,000	242,070	12.10	1,124,000	242,070	21.54	56.20
6	18,000	4,360	24.22	1,500	290	19.33	8.33
7	30,000	3,020	10.07	21,500	3,020	14.05	71.67
8	10,500	1,830	17.43	7,500	1,830	24.40	71.43
9	11,000	2,410	21.91	10,000	2,410	24.10	90.91
10	10,500	1,980	18.86	10,000	1,980	19.80	95.24
11	7,000	1,360	19.43	6,000	1,360	22.67	85.71
12	10,250	2,430	23.71	10,000	2,420	24.20	97.56
13	15,000	4,390	29.27	13,500	4,390	32.52	90.00
14	22,500	3,930	17.47	17,900	3,930	21.96	79.56
15	90,000	8,880	9.87	100,000	7,900	7.90	111.11
16	46,500	6,040	12.99	28,500	6,040	21.19	61.29
17	30,000	3,375	11.25	22,000	3,375	15.34	73.33
18	22,500	4,430	19.69	18,000	3,120	17.33	80.00
19	62,500	8,120	12.99	38,000	8,120	21.37	60.80
20	72,500	15,630	21.56	63,000	15,630	24.81	86.90
21	33,000	6,580	19.94	30,500	6,580	21.57	92.42
22	15,000	3,420	22.80	15,000	3,420	22.80	100.00
Totals	$2,558,750	$331,335	12.95	$1,574,400	$324,965	20.64	61.53
Yuba County							
1	$55,000	$15,495	28.17	$75,000	$15,495	20.66	136.36
2	7,500	2,125	28.33	7,500	2,125	28.33	100.00
3	8,500	2,760	32.47	9,000	2,760	30.67	105.88
4	50,000	13,005	26.01	57,000	13,005	22.82	114.00
5	11,500	3,090	26.87	11,000	3,090	28.09	95.65
6	7,750	2,220	28.64	8,500	2,220	26.12	109.68
7	8,500	1,970	23.18	7,000	1,970	28.14	82.35
8	11,000	2,545	23.14	11,500	2,545	22.13	104.55
9	10,000	720	7.20	2,000	720	36.00	20.00
10	12,000	3,410	28.42	12,750	3,410	26.74	106.25
11	22,500	4,165	18.51	18,500	4,165	22.51	82.22
12	275,000	44,540	16.20	187,500	39,975	21.32	68.18
Totals	$479,250	$96,045	20.04	$407,250	$91,480	22.46	84.98

SOURCE: Assessed values from county assessors.

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printed in CALIFORNIA STATE PRINTING OFFICE

REPORT OF THE

SENATE INTERIM COMMITTEE ON STATE AND LOCAL TAXATION

PART SEVEN

FISCAL PROBLEMS OF URBAN GROWTH IN CALIFORNIA

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California Legislature
1953 REGULAR SESSION

June, 1953

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LETTER OF TRANSMITTAL

Senate Committee on State and Local Taxation
Room 208, 507 Polk Street, San Francisco, May 22, 1953

President of the Senate
California Legislature
Sacramento, California

Dear Sir: Pursuant to Senate Resolution No. 190 read and adopted June 23, 1951, by the Senate of California at the 1951 Regular Session of the Legislature, the Senate Interim Committee on State and Local Taxation herewith submits Part Seven of its report. This part of the committee's report is entitled ''Fiscal Problems of Urban Growth in California.''

The report examines the fiscal problems which have arisen from the growth of urban unincorporated areas in five selected counties in the State. It further attempts to analyze the extent to which extra measures of services have been provided within incorporated cities, in unincorporated urban areas, and in rural areas, by various units of local government. An attempt is also made to trace the extent to which the costs of these extra amounts of services may impose burdens upon taxpayers residing in areas not directly benefited.

The committee takes this opportunity to express its appreciation for the generous and wholehearted cooperation of the local government officials who assisted the staff in preparing this report. The cooperation of the League of California Cities and the County Supervisors' Association of California is also gratefully acknowledged.

Respectfully submitted,

BEN HULSE, Chairman
Clarence C. Ward, Vice Chairman
Harry L. Parkman
Harold J. Powers
Hugh M. Burns

SENATE RESOLUTION No. 190

Relative to a Senate Committee on State and Local Taxation to make inquiry into every phase of taxation, creating the committee and defining its powers and duties

WHEREAS, The economy of the State of California has during the recent years gone through a revolutionary change, so that industry has assumed an increased importance in relation to agriculture, mining, and commerce; and

WHEREAS, This change has resulted in bringing into the State industries and properties of large value which have not previously been considered in our tax structure, and has created new governmental problems; and

WHEREAS, The increased population incident to this change in our economy has also created new governmental problems and made new demands upon both local and state governments; and

WHEREAS, The unprecedented growth of motor transportation and the change-over to the use of diesel fuel in motor transportation during the war period, together with the added population of our State and the concentration in industrial centers, has materially changed the requirements for the support of highways, streets, and bridges; and

WHEREAS, It appears that there may be large sums in the way of federal subsidies granted both to the state and local governments which will directly affect the revenue structure and will require careful examination to coordinate the disposition of these subsidies equitably into the entire revenue program of both state and local governments; and

WHEREAS, From the beginning of the State's history, the ad valorem tax has been and still is the fiscal mainstay of local government and has not been adjusted to meet the new conditions; and

WHEREAS, The administration of taxation by the State and by the local governments has not been modernized, in fact has not been materially changed to bring it into line with present or prospective needs; and

WHEREAS, The relative burden of our several taxes on the different classes of taxpayers and different classes of property has not been fully determined; and

WHEREAS, There are new classes of property and rights that have grown up in the State that are not subject to taxation; and

WHEREAS, The acquisition, holding and exchange of land in this State by the United States of America has many aspects and involves varied and varying relationships, including the bearing and effect thereof upon taxes levied or leviable by the State and by local governmental units within the State; and

WHEREAS, Neither the state nor local governments have available to their legislative bodies information concerning all the varied phases of this problem adequate to legislative consideration and action in the endeavor to find and effect a solution; and

WHEREAS, For many years the burdens of government have been increasing both for the state and local governments, including many fixed charges not controllable by administrative bodies but brought about in answer to the demand of the people expressed in continuing legislation or in constitutional requirements, it is imperative that an appraisal be made so that revenues may be made adequate to meet the demands of government, both local and state, and the burdens of taxation may be equitably distributed upon and among the several classes of property and of taxpayers; now, therefore, be it

Resolved by the Senate of the State of California, As follows:

1. The Senate Committee on State and Local Taxation is hereby created, authorized and directed to ascertain, study, and analyze all facts relating to or in any way bearing upon any of the subjects mentioned in the recitals of this resolution, particularly including but not limited to each phase of each and every tax (as herein defined) imposed in this State by any governmental agency (state, local, or federal); the incidence and burden of each such tax upon property, business and the taxpayer and the ability of the latter to pay, also the productivity of each such tax in relation to its cost of administration and in relation to the purposes for which imposed, each of which factors of each tax the committee shall consider, weigh, appraise and evaluate with each such factor of every other tax; the bearing and effect upon state and local taxes and expenditures of the acquisition, holding and exchange of lands in this State by the United States; the present and prospective revenue needs of each agency of government and the most equitable means of meeting each such need, taking into consideration all of the varied forms of tax now in use or that might be devised and put into use, and all existing sources of revenue and new sources of revenue that might be developed; administrative methods and procedures which now obtain in respect to each such tax and how they might be improved; present and prospective governmental expenditures of and the acquisition, management, use and disposition of properties by, each state or local governmental agency and the bearing thereof upon and relation to each and every form of tax now imposed or that might be devised and imposed; and the operation, effect, administration, enforcement, and needed revision of any and all laws in any way bearing upon or relating to the subjects of this resolution; and to report thereon to the Senate, including in the reports its recommendations for appropriate legislation.

2. The committee shall consist of five Members of the Senate appointed by the Senate Committee on Rules. Vacancies occurring in the membership of the committee shall be filled by the appointing power.

3. The committee is authorized to act during this session of the Legislature, including any recess, and after final adjournment until the commencement of the 1953 Regular Session, with authority to file its final report not later than the fifteenth day after the constitutional recess. The time for filing the final report shall not be extended.

4. The committee and each subcommittee thereof is authorized to leave the State of California in the performance of its duties.

5. The committee and its members shall have and exercise all of the rights, duties and powers conferred upon investigating committees and their members by the provisions of the Joint Rules of the Senate and Assembly and of the Standing Rules of the Senate as they are adopted and amended from time to time at this session, which provisions are incorporated herein and made applicable to this committee and its members.

6. The committee has the following additional powers and duties:

(a) To select a chairman and a vice chairman from its membership.

(b) To contract with such agencies, public or private, as it deems necessary for the rendition and affording of such services, facilities, studies and reports to the committee as will best assist it to carry out the purposes for which it is created.

(c) To cooperate with and secure the cooperation of county, city, city and county, and other local law enforcement agencies and also civic and private organizations, in investigating any matter within the scope of this resolution, and to direct the sheriff of any county to serve subpenas, orders and other process issued by the committee.

(d) To report its findings and recommendations to the Legislature and to the people from time to time and at any time, not later than the last legislative day of the 1953 Regular Session.

(e) To do any and all other things necessary or convenient to enable it fully and adequately to exercise its powers, perform its duties, and accomplish the objects and purposes of this resolution.

7. "Tax" as used herein includes:

(a) Every kind of levy, collection, or charge made by the State Government, or by any city, county, city and county, political subdivisions, public district, or other state or local public agency, or by the Government of the United States;

(b) Whether imposed for general governmental purposes or for a special purpose;

(c) Whether a property, transfer, franchise, excise, privilege, or other form of tax;

(d) Whether for revenue or for the purpose of regulation, an assessment made in the apportionment of benefits conferred by improvements made, or charge for services or property rendered or delivered, or of any other nature or for any other purpose whatsoever;

(e) Whether called a tax, an assessment, a fee, a license fee, a registration fee, a rental rate, a sales price, or designated by any other name whatsoever.

8. The sum of one hundred thousand dollars ($100,000) or so much thereof as may be necessary, is hereby made available from the Contingent Fund of the Senate for the expenses of the committee and its members and for any charges, expenses or claims it may incur under this resolution, to be paid from the said contingent fund and disbursed, after certification by the chairman of the committee, upon warrants drawn by the State Controller upon the State Treasurer.

PROCEDURES, SUMMARY OF FINDINGS, AND RECOMMENDATIONS OF THE COMMITTEE

PROCEDURES

California's tremendous growth in population over the last two decades was accompanied by the widespread development of densely populated urban communities in various counties of the State. This urban development occurred both in areas adjacent to the limits of incorporated cities (so-called "fringe areas") and in areas at some distance from them. As these urban areas grew in population and size, the nature of their requirements for governmental services changed greatly. The levels of local government services commonly provided by the county unit throughout the entire county area became inadequate; the urban areas began to require services of the type and level provided by incorporated municipalities to their inhabitants.

Most of these urban communities did not, however, seek to provide themselves with "municipal-type" services by the usual methods of incorporation or annexation to adjacent cities. Instead they sought such services from the county; from adjacent incorporated cities; and through the organization of single-purpose special districts. While increased numbers of special districts were organized to meet service needs in urban areas, counties were called upon more and more to provide extra measures of service therein, and cities, in many instances, extended various services to fringe area developments. In fact, in those cases where incorporated cities extended services to the unincorporated urban areas on their borders, they probably discouraged rather than encouraged the annexation of such areas. Moreover, as county government stepped in to provide these unincorporated communities with extra measures and higher levels of service than were provided in other areas of the county, annexation, incorporation, and special district formation were unquestionably even further discouraged.

To the extent that county units of government expanded their operations to meet the demands of the residents of unincorporated urban areas for higher levels of service, county budgets and tax bills were obviously increased. This meant, of course, that city dwellers were not only required to pay city taxes to provide themselves with municipal services; they were also required to pay higher county taxes to provide municipal-type services to the residents of unincorporated urban communities. Rural dwellers similarly were required to pay higher county tax bills to help provide a level of county service in unincorporated urban areas higher than the level required or received in rural areas. Thus the charge developed that city and rural county taxpayers were subsidizing the residents of these "unofficial cities."

This issue of the "subsidization" of municipal-type services in unincorporated urban areas by city and rural county taxpayers reached a climax at the 1951 Regular Session of the Legislature. At this session, Assembly Bill 3217 was introduced which provided in its original version that "the board of supervisors shall not provide any municipal type service to any area determined to be an urban unincorporated area in proceedings taken under this chapter, unless all costs are paid by the areas served." In a subsequent amended form of the bill (June 21, 1951), the following policy statement was set forth:

> "The Legislature hereby finds and declares that unprecedented growth in California, particularly since 1940, has created many new and difficult problems of government. One such problem has arisen in the unincorporated areas of many counties where, as a result of large population growth and extensive residential, commercial and industrial development, these areas require governmental services commonly provided by cities. Many of these areas do not now choose to incorporate or annex to cities.
>
> "At the present there is no equitable method of providing efficient and economical performance of special urban services in such areas. Boards of supervisors in many counties of the State, faced with the demand for services from these areas and recognizing the need, have been obliged either to require such areas to create numerous overlapping special purpose districts or to provide the services directly through the county departments. In these circumstances the tendency of many boards of supervisors has been, and increasingly is, to provide these services directly. The law, however, makes no provision for assessment of the cost of such direct county services against the benefited property. Such expenditures are made from county general funds to which both city and rural property owners contribute through general county taxes. Thus a serious tax inequity has arisen.
>
> "The residents and property owners of such unincorporated urban areas of the county are entitled to have made available to them reasonable alternative methods of providing or securing the special urban services they require and to choose among the alternatives the method best suited to their local circumstances. Equity requires, in addition, that the inhabitants and property owners of such areas pay for such special urban services rather than to continue to receive them as a result of taxes paid largely by others.
>
> "It is, therefore, the purpose of this act to provide an additional alternative method for the provision of such urban services in urban unincorporated areas; to require the payment of such costs by the benefited property; and to establish a procedure for the determination and payment of such costs."

This same amended version of the bill also provided for the establishment of ''special urban service zones'' wherein county boards of supervisors were to be empowered to extend governmental services beyond the level maintained throughout the county and wherein the costs of these extra measures of service would be met by higher tax rates applied to the residents thereof.

Grave charges and countercharges and lengthy indictments marked the progress of Assembly Bill 3217 through the legislative process. The bill, however, failed to pass both houses and the problem was assigned to the Senate Interim Committee on State and Local Taxation and to the Assembly Interim Committee on Municipal and County Government for study. The report which accompanies this statement presents the findings of the research staff of the Senate Interim Committee on State and Local Taxation pursuant to these instructions of the Legislature.

Since this problem was assigned to both the Senate Interim Committee on State and Local Taxation and the Assembly Interim Committee on Municipal and County Government, it was agreed that the research staffs of the two committees, in collaboration with representatives of the County Supervisors Association of California and the League of California Cities, should work out a *modus operandi* designed (1) to secure for both committees all of the facts relating to the problem and essential for its solution; (2) to develop a uniform body of data upon which both committees could base their deliberations; and (3) to be least burdensome upon the county and city officials and departments who would be asked to supply both committees with the necessary data and information.

In the interest of achieving these objectives, the Senate and Assembly Interim Committees held a joint hearing in Sacramento on Saturday, October 27, 1951. All interested persons and groups were invited to this hearing to express their views on the problem and the procedures to be followed in the conduct of committee inquiries. The following witnesses representing various interested groups appear before the two committees at this joint hearing.

Richard Graves, Executive Director, League of California Cities

William MacDougall, General Manager, County Supervisors Association of California

Willard Smith, President, County Supervisors Association of California and County Supervisor of Orange County

Charles A. Pearson, Mayor, City of Anaheim, and Chairman, Committee of Inter-Governmental Relations, League of California Cities

Harold W. Kennedy, County Counsel, Los Angeles County

James Lyttle, Chairman, Board of Supervisors, Sonoma County

James Garlick, Chairman, Board of Supervisors, Sacramento County

Louis A. Gretz, California League of Unincorporated Communities

Lowell Edington, Chairman, Board of Supervisors, Napa County

Vincent Cooper, Assistant Manager, County Supervisors Association of California.

In addition to these witnesses, a specially constituted committee of the research officers of the Senate Interim Committee on State and Local Taxation, the Assembly Interim Committee on Municipal and County Government, the County Supervisors Association of California, and the League of California Cities presented a report of recommended procedures to be used in the conduct of the research program. This report set forth the following matters to be studied:

> ''(1) The nature of certain county services and the extent to which they are provided by the county in rural areas; in unincorporated urban areas; and incorporated cities.
>
> ''(2) The nature of certain city services and the extent to which such services are extended to unincorporated urban and rural areas lying outside the city.
>
> ''(3) The extent to which the taxes paid by the residents of cities and some areas outside cities constitute subsidies to certain other areas of counties because such other areas receive expanded and extra amounts of county service.''

The report of the research group further recommended the study of these problems in five counties of the State. These counties were Alameda, Kern, Los Angeles, Napa and Sacramento. The research group also recommended that, in these counties, the following selected list of governmental services should be studied:

1. Sheriff and constable
    a. Jails
    b. Road camps
    c. Patrol activity
2. Roads and streets
3. Health
4. Hospitals
5. Library
6. Fire
7. Recreation and parks
8. Planning and zoning

Both committees adopted the recommendations of the special research staff committee.

It should be noted at this point that the Board of Supervisors of Fresno County adopted a resolution on January 15, 1952, requesting a study of unincorporated urban areas in Fresno County. The research staff visited this county and discussed the problem with county and city officials but the limitations imposed by time, staff, and funds precluded making any intensive inquiry. The committee regrets that it was unable to conduct this study and it wishes to commend the spirit of cooperation manifested by this resolution of the Fresno County Board of Supervisors. The generous assistance which was extended to the staff by county officials and by the officials of the City of Fresno is also gratefully acknowledged.

SUMMARY OF FINDINGS

In the report which follows, each of the services listed above has been studied in each of the selected counties. While primary attention has been focused upon these services as they are provided by the county unit of government to the residents of the rural, incorporated, and unincorporated urban areas of the county, the analysis also includes an examination of the services supplied by cities to areas outside their incorporated limits and services provided by special districts.

Furthermore, it should be noted that, as the title (*Fiscal Problems of Urban Growth in California*) of the staff report indicates, the analysis is predominantly concerned with the fiscal aspects of providing these services. There are, of course, many other aspects of this problem relating, for example, to issues of annexation, incorporation, and local government organization in general, and these certainly merit equally intensive study. However, this report is primarily concerned with the varying levels of service which are provided in the different areas of a given county and with an attempt to measure the subsidization, if any, which such variations in levels of service occasion.

Fundamentally, the problem of city-county relationships and the levels of local government service each should provide is one of local government organization. Fortunately or unfortunately, the laws relating to these local units and the service levels at which each should operate is extremely general and offer little by way of definite and explicit limitation. These relationships also become involved with such considerations of fiscal theory as who receives the benefits of local services and who should defray their cost. These are very large problems for which, at best, only extremely tenuous quantitative measurements and qualitative analyses have been developed. Measured only in terms of the amounts which counties have budgeted, however, the particular services about which questions of subsidization may be raised turn out to be quite small. Of the net total of budgeted expenditures in the counties studied in this report only 2 percent in Napa County, 2.4 percent in Sacramento County, 6.5 percent in Kern County, 3 percent in Alameda County, and 2.6 percent in Los Angeles County were considered as involving questions of the subsidization of one group of taxpayers by another.

In general, subsequent chapters on each of the counties selected for study show that some inequities exist in county planning services. City residents not only pay city taxes in support of city planning services but in many instances they also pay county taxes in support of county planning functions which are not provided inside incorporated cities. The analyses of law enforcement and police protection also show that higher levels of these services are provided in some of the unincorporated urban areas of the counties studied than are provided throughout the remainder of the county. For example, the sheriff's department provides regular patrol service in the unincorporated urban areas of the county as against only a call service in the rural areas. In all of the counties studied, except Napa, fire protection has been provided to the major portion of the unincorporated area through special district organization. For the most part, the counties have provided only brush and watershed fire protection while structural fire protection has been provided through the formation of special fire protection districts. It should be noted that in the counties studied, although fire protection has been provided largely through the organization of special districts, police protection has been secured through the extension of the services of the county sheriff's department.

In the field of public health and hospitals, Napa and Kern Counties provide health services to all residents of the county including the residents of incorporated cities. While the health service provided by Sacramento, Alameda, and Los Angeles Counties is also available throughout each county, various cities in these counties operate their own health services. In the latter cases, city residents not only pay taxes in support of their city health departments; they also contribute to the support of the county health department. In all of the counties studied, county hospital service was maintained on a county-wide basis with free hospital service provided for indigent patients and with special charges assessed for other patients.

The problem of subsidization with respect to roads and streets is largely one of the use of funds received from the State, or from road taxes levied in the unincorporated areas of the county, for the construction and maintenance of secondary roads which provide access facilities of purely local benefit in unincorporated urban areas. In all of the counties studied, funds from these sources were spent on county secondary roads and streets which provided limited local access facilities in unincorporated urban communities rather than highway facilities for the accommodation of through traffic. To the extent that city and rural residents paid state highway user taxes or special ad valorem levies for roads and streets, the use of such county revenues for road purposes of a local and limited nature constitutes a subsidy of the urban areas where such facilities were provided.

In Alameda and Sacramento Counties, park and recreation services have for the most part been provided by the cities in each county, and by special districts. County expenditures for these services have been limited. In Napa County these facilities have been supplied by the City of Napa and the Napa School District. Kern and Los Angeles Counties have, however, provided extensive park and recreational services. City and district parks and recreation facilities are used extensively by county residents who do not contribute to their support and hence a subsidy may be said to exist where no charges are made for the use of such facilities. In Kern and Los Angeles Counties the development of local parks which are used primarily by the residents of the unincorporated areas wherein they are located may be considered as involving a subsidy by city residents who pay county property taxes for the support of this service.

County library services were supported by a county-wide tax in Kern County and were provided to all residents of the county, both inside and outside incorporated cities. No cities in Kern County maintained city libraries. The City of Sacramento operated its own library while county library service was provided elsewhere in Sacramento County by means of a special ad valorem tax rate applied outside the City of Sacramento. In Alameda County eight cities operated their own libraries while two cities and the unincorporated area were served by the county library. Since the county library was supported from the general and salary funds, the residents of the eight cities maintaining their own libraries subsidized county library services in other cities and in the unincorporated areas of the county. In Napa County, the county library was supported by a special tax rate applied only to residents living outside incorporated cities. County library service in Los Angeles County is provided to the entire unincorporated area and 22 incorporated cities. The major share of the cost of this service is met by a special library tax levied upon the residents of the areas served; only a very minor share is paid by the residents of cities not served due to the provision in the Education Code that librarians' salaries shall be met from the county salary fund.

RECOMMENDATIONS

The committee recognizes that the growth and expansion of densely populated urban areas which remain unincorporated has created problems of local government organization in California. Certainly such growth has added to the confusing multiplicity of special districts in the State and unquestionably it has led to the so-called subsidization of unincorporated urban areas by city and rural taxpayers. Fiscally, the problem does not at the present time loom large, as the following report points out. But if this trend toward the seeking of municipal-type services by these unincorporated urban areas from county and city governments is allowed to grow, serious inequities will most certainly appear.

No clear solution to this problem suggests itself. If unincorporated urban communities were to seek the municipal-type services they require through special district organization, the pattern of local government in California would become more complex and confused. On the other hand, statutes making annexation or incorporation compulsory violate the fundamental right of the residents of particular areas to choose the amount and type of local government they would like to have. A temporary solution obviously lies, therefore, in the area wherein existing local units may provide extra measures of service to these unincorporated urban communities and charge the residents of such communities in proportion to the service provided.

The committee recommends that solutions to this problem be sought further through the cooperative efforts of county and city officials. From the inquiries conducted it is clearly apparent that, in most of the cases where county and city officials have met and discussed these common problems, the difficulties have disappeared and a wide area of agreement has emerged. In the opinion of the committee, this course leads to the most satisfactory and permanent solutions to the problems of the levels of service which local units of government should provide in the rural, unincorporated urban, and incorporated city areas of California.

The committee also supports Chapter 858 of the Statutes of 1953 (Assembly Bill 1841) whereby counties are permitted to establish ''county service areas'' wherein extra measures and higher levels of county service may be provided to unincorporated urban areas and wherein higher tax rates may be applied for the purpose of defraying the higher costs occasioned by such services. Article 1, General Provisions, of this Chapter provides:

''25210.1. The Legislature hereby finds and declares that unprecedented growth in the unincorporated areas of a great many counties of California, particularly since 1940, has created many new and difficult problems of government. As a result of large population growth and intensive residential, commercial and industrial development in such areas, extended governmental services are needed in such areas.

''The Legislature recognizes the duty of counties as instrumentalities of State Government to adequately meet the needs of such areas for extended governmental services and also recognizes that such areas should pay for the extended services which are provided.

''The residents and property owners of such areas are entitled to have made available to them reasonable alternative methods of providing or securing the extended services they require and to choose among the alternatives a method best suited to their local circumstances.

''It is the purpose of this chapter to provide an additional alternative method for the furnishing of extended governmental services within such areas adequate to meet the needs of such areas and to provide for the levy of taxes within such areas in an amount sufficient to pay for the extended services provided or additional extended services to be provided.

''25210.2. This chapter shall be known and may be cited as the 'County Service Area Law.'

''25210.3. This chapter provides an alternative method for providing governmental services by counties within unincorporated areas and the provisions of this chapter shall not affect or limit any other provisions of law authorizing or providing for the furnishing of governmental services within such areas.

''When any proceedings are commenced under this chapter, for the establishment of a county service area or for providing additional types of services within an established county service area, the provisions of this chapter and no other shall apply to such proceedings. The provisions of Chapter 8 of Part 1, Division 2, Title 5 of the Government Code shall apply to all such proceedings and the term 'district' as used in said Chapter 8 shall be deemed to include a county service area for the purposes of said chapter only.

''25210.4. A county service area may be established under this chapter to provide any one or more of the following types of extended service within such area:

(a) Extended police protection.

(b) Structural fire protection.

(c) Local park, recreation or parkway facilities and services.

(d) Any other governmental services hereinafter referred to as miscellaneous extended services, which the county is authorized by law to perform and which the county does not also perform on a countywide basis both within and without cities, if:

(1) The board of supervisors determines that such services should be provided on an extended basis within a county service area; or

(2) Such services are specified in a request for a petition for the initiation of proceedings for the formation of a county service area or in a request or a petition for the initiation of proceedings for the furnishing of additional types of services within a county service area.

''At the time of the adoption of the resolution of intention to establish a county service area the board of supervisors shall specify the type or types of services which are proposed to be provided within the area pursuant to this chapter.''

The committee, however, feels that subsequent developments under Chapter 858, Statutes of 1953, must be carefully watched. The County Service Area Law delineates a new and additional taxing area and thus its effects may not be dissimilar from those which would occur were the extra measures of service sought through multi-purpose special district organization under the jurisdiction of county boards of supervisors. The merit of the solution set forth in Chapter 858 must be judged not only in terms of the equity which it achieves through the elimination of the ''free rides'' which the residents of unincorporated urban areas are alleged to enjoy, but also in terms of its effects upon the already complex fiscal organization of local government in California.

REPORT OF THE COMMITTEE RESEARCH STAFF

FISCAL PROBLEMS OF URBAN GROWTH IN CALIFORNIA

Prepared by

LUIGI M. LAURENTI
WILLIAM K. SCHMELZLE

LETTER OF TRANSMITTAL

SENATE COMMITTEE ON STATE AND LOCAL TAXATION
SAN FRANCISCO 2, CALIFORNIA, May 22, 1953

HONORABLE BEN HULSE, *Chairman*
and Members of the Senate Interim Committee on State and Local Taxation
State Capitol
Sacramento, California

HONORABLE GENTLEMEN: The research staff herewith submits its study of the local fiscal problems which have arisen from the great growth of unincorporated urban communities in the State. This study, entitled ''Fiscal Problems of Urban Growth in California,'' constitutes Part Seven of the committee report.

The report begins with a general discussion of the local fiscal issues created by the development of fringe areas and noncontiguous urban communities which remain unincorporated but which also require so-called ''municipal-type'' services. This introduction is followed by a review of the existing laws relating to the provision, by local units, of the services under discussion. The succeeding chapters present case studies of the problem in Napa, Sacramento, Kern, Alameda, and Los Angeles Counties.

The staff wishes to thank the many county and city officials who gave generously of their time to assist the committee in the conduct of this inquiry. We further wish to express our appreciation for the cooperation extended by the League of California Cities and the County Supervisors' Association of California. We also wish to acknowledge with thanks the assistance of the Legislative Counsel.

Every effort has been made to document the report carefully; to present factual data correctly; and to acknowledge sources of information. Any errors or omissions are unintentional and the staff stands ready to correct them.

The staff also wishes to thank the members of the committee for their advice and counsel in the preparation of this report.

Respectfully submitted,

WILLIAM K. SCHMELZLE
Executive Secretary

CHAPTER I

A STATEMENT OF THE PROBLEM

The pattern of urban growth in California since 1940 created many serious problems with respect to intergovernmental relationships at the local level. This growth was marked by the wide-spread development of urban communities requiring many governmental services of the types commonly provided by incorporated municipalities. For the most part, however, these urban communities did not meet their needs for municipal-type services either through the establishment of incorporated municipalities or through annexation to existing cities. They relied instead upon expanded county services in the urban area; the extension of city services to such areas; or the formation of special districts. This in turn, led to further multiplicity in the number of local units providing both particular services and the same level of service and to inequities between taxpayers living in different areas of a given county as to the level of service received and the amount of taxes paid in support of such services.

A general picture of urban growth in California is provided by the figures in Table 1, below. This table presents a distribution of the State's population by urban and rural classifications for the last four census years.

TABLE 1

RURAL AND URBAN POPULATION IN CALIFORNIA

Census Years 1920 Through 1950

Census year	*Total*	*Urban*	*Rural*
1920 [a]	3,426,861	2,493,050	933,811
1930	5,677,251	4,314,431	1,362,820
1940	6,907,387	5,057,883	1,849,504
1950 (old definition)	10,586,223	7,237,935	3,348,288
1950 (new definition)	10,586,223	8,678,189	1,908,034

NOTE: [a] Data as of January 1, 1920.
SOURCE: U. S. Bureau of the Census "U. S. Census of Population: 1950," Vol. I. "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951.

While these figures are based upon data compiled by the U. S. Bureau of the Census, it should be noted that certain adjustments have been made thereto. In several respects the definitions adopted by the Bureau of the Census as to what constitutes urban and rural settlement do not conform with those adopted in this study.[1] It should further be noted that a new and broader definition of urban settlement has been applied by the Bureau of the Census to the data for 1950. While this new definition is much more inclusive and therefore more closely similar to the concepts of urban settlement adopted in this report, the data compiled on this new basis cannot safely be used to indicate the trends in urban and rural population distribution between 1940 and 1950.

The total population of incorporated cities in California is useful for providing at least a rough indication of the distribution of the urban population between incorporated and unincorporated places. It must, however, be remembered that the difference between the total urban population figures and the figures for incorporated cities is by no means an accurate count of the population residing in unincorporated urban communities; in fact, it probably falls short even with the new urban definition adopted by the Bureau of the Census. The total population of incorporated cities in California is shown below for the last four census years.

Census year	*Population of incorporated cities*
1920	2,484,905
1930	4,265,439
1940	5,020,691
1950	7,191,268

The population of incorporated cities in California increased 72 percent from 1920 to 1930; 18 percent from 1930 to 1940; and 43 percent from 1940 to 1950. In comparison with these gains, Table 1 shows that the total population of the State rose 66 percent from 1920 to 1930; 22 percent from 1930 to 1940; and 53 percent from 1940 to 1950. Unfortunately, as has been indicated above, similar comparisons cannot be drawn between urban and rural growth. On the assumption that, under the old census definition of urban settlement, the exclusion of some urban places was of less importance in the total picture in 1920, 1930, and 1940 than in 1950 after a decade of tremendous population growth, industrial development, subdivision activity, and new plant and military base locations, a few very rough comparisons may, however, be made. In 1920, it is estimated that the rural population comprised 27 percent of the State's total population. Thereafter the proportion fell to 24 percent in 1930 and then in 1940 rose to 27 percent. Urban population increased from 73 percent of the total in 1920 to 76 percent in 1930 and then declined to 73 percent in 1940. The population of incorporated cities rose from 72 percent of the total in 1920 to 75 percent in 1930 and then fell to 73 percent in 1940. Noting once again that with the change in the urban and rural definitions used by the Bureau of the Census, trend analysis is invalid, the picture in 1950, using the new census definition, showed 68 percent of the populaltion residing in incorporated cities; 82 percent in urban territory; and 18 percent in rural areas of the State.

The evidence in support of the use of the population distribution developed under the new definitions of the Bureau of the Census as more indicative of the situation in California is more than ample. The population data developed from various sources and presented in the following chapters which study particular counties, indicate clearly that the urban population, defined under any realistic sets of conditions, has outstripped the rural population in growth. Moreover, it has undoubtedly grown faster in total than one of its components, namely, the population of incorporated cities. The League of California Cities in a report of its Committee on Intergovernmental Relations states: [2]

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[1] See pages V through VII of "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, for the definitions of urban and rural used by the Bureau of the Census. Census figures for urban population have been expanded to include *all* incorporated cities in the urban classification.

> "The wide-spread and large-scale movement of city dwellers to the unincorporated suburban communities in California is as spectacular as the preceding half-century shift to the cities. The unincorporated area population has increased almost twice *as fast* as city population. While state-wide growth was 51.6 percent since 1940, the population of the unincorporated areas increased 79.3 percent and cities grew 41.3 percent.
>
> "The population outside cities in Los Angeles County is greater than the total population of any other county in the State. Some 69 identifiable communities are found in the unincorporated areas. Consequently, county provision of municipal-type services is higher here than anywhere else in the State.
>
> "Unincorporated communities have shown similar growth in almost every other county of the State. Good examples are Castro Valley (14,770) and San Lorenzo (12,150), Alameda County; Alisal, Monterey County (16,750); the fringe areas surrounding Fresno (40,000); Paradise, Butte County (10,000) etc., etc. These are only a few examples.
>
> "While these unincorporated communities have mushroomed in the past 10 years, new incorporations have not kept pace. Since state law authorizes unincorporated areas containing not less than 500 residents to become 6th class cities, one would assume that many incorporations would have taken place in the past few years. The contrary is true, however. Of the 19 cities incorporated since 1940, only one of them was over 10,000 and three over 5,000. Only three (Barstow, Guadalupe and Port Hueneme) are in the southern part of the State and only San Pablo and Millbrae in densely populated northern metropolitan areas.
>
> "Amazingly enough, there has not been a single incorporation in Los Angeles County in the past decade, and only one since 1930. This is even more surprising in view of the fact that the unincorporated area population in Los Angeles County is greater than the total population of any other county."

This growth of unincorporated urban communities has been accompanied by demands for more public services and higher levels of performance with respect to existing ones. In short, the standards of service commonly provided for the most part by the county unit to rural areas and communities were not adequate to meet the needs of these "unofficial cities." The unincorporated urban areas began to require such municipal-type services as police and fire protection; street construction, maintenance, lighting and sweeping; planning and zoning; recreation facilities; public health; hospital facilities; library facilities, and many others. In some instances, urban fringe areas turned to adjacent cities for some of these services such as water and sewage disposal. In other cases, higher levels of service were sought through special district organization, such as police and fire protection districts. In still other cases, municipal levels of service were sought from the county unit of government.

The major issues of equity with respect to the taxpayers of one area "subsidizing," or providing a "free ride" for, the taxpayers of another area of a county rose out of the latter situation. Where the residents of unincorporated urban areas sought services from adjacent cities, the city in many instances imposed special charges for the extended service. Where the special district device was used, the residents of the district obviously paid for the service provided. However, where the county provided a municipal level of service to a particular urban area, in contrast to a lower level of service in other areas, and all county taxpayers contributed at a uniform rate to the support of this service, some county residents were obviously getting a larger measure of service for their tax dollar than others.

This "subsidization" of unincorporated urban areas by county taxpayers residing in incorporated cities was also set forth in the Report of the Intergovernmental Relations Committee of the League of California Cities, mentioned above.[3] The report states:

> "It was inevitable that the great growth of the urban unincorporated areas would be accompanied by widespread and insistent demands for municipal services in such areas. The Boards of Supervisors have had the choice of either requiring these unincorporated communities to form many overlapping special purpose districts or to furnish the required services directly through county departments. Actually, the supervisors cannot compel the creation of a special purpose district, and only by refusing to provide urban services through county departments can they in any sense encourage the establishment of such districts. In the 15 California counties studied, however, the trend is for the Boards of Supervisors to supply municipal services—those services generally accepted as a responsibility of city government—directly through county departments. Unfortunately, state law does not provide a method for assessing and collecting the cost of such county rendered services. Here, then, is the crux of the matter: Special urban services furnished directly by the counties to urban unincorporated areas are financed from the county general fund which is maintained from general county taxes paid by both city and rural property owners."

The report goes on to state:

> "A double standard of taxation prevails today in California. If you live in an incorporated city you are expected to pay for all city services, but if you live in an unincorporated community the city property taxpayers and the farmer are expected to pay part of your community services and facilities bill. They do this through tax support of county govern-

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[2] "A study of the County Subsidy of Municipal Type Services to Urban Unincorporated Areas," Report of the League of California Cities Committee on Intergovernmental Relations, May, 1951.

[3] *Ibid.*

ment, which furnishes municipal services to the 'unofficial cities' and unincorporated urban fringes at county-wide expense. These municipal services are provided almost exclusively by county government to the unincorporated *urban* areas.

"In short, the counties are subsidizing the urban areas outside cities at the expense of the city taxpayer and the farm taxpayer. In Los Angeles County, for example, if the taxpayers of the unincorporated areas paid their own way, city taxpayers would be relieved of 20 cents on their county tax rate. The tax rate in the unincorporated area would rise by at least $1.

"In serving the 'unofficial cities' municipal services, such as police and fire protection, county government has stepped out of its traditional function of serving only the rural areas and providing county-wide services. County-wide services are supplied without regard to municipal boundaries, inside as well as outside cities, and are not usually duplicated by cities. The city taxpayer gets a fair and equitable return on his county tax dollar which is spent for county-wide services like the county clerk, the judiciary, hospitals, the recorder, welfare, the sealer of weights and measures, etc. But when the county furnishes services which principally benefit the urban unincorporated areas out of either general funds or nonearmarked state subventions, it creates fiscal inequities and uneconomic incentives for the local of residential, commercial and industrial properties outside cities.

"Because of the subsidy from county government, new development outside cities is encouraged, incorporation is discouraged, and annexation is made much more difficult. This practice is detrimental to the city in two ways:

(1) City taxpayers are paying a portion of the urban unincorporated community tax bill.

(2) Urban fringe areas are built up and perpetuated, choking off future city growth and creating problems for the city over which it has no control."

The following chapters present a series of case studies of the local fiscal problems caused by urban growth in five California counties. Preceding these analyses, however, existing laws relating to the areas of jurisdiction and administration of various types of local units and the services and levels of service which they are empowered to provide are reviewed in Chapter II. Subsequent chapters examine various selected services and the levels at which these services are provided in different areas of Napa, Sacramento, Kern, Alameda and Los Angeles Counties.

CHAPTER II

THE LEGAL ASPECTS OF SELECTED COUNTY, CITY, AND SPECIAL DISTRICT SERVICES

The definitions which currently exist in the laws of the State as to the areas of administrative operations of counties, cities, and special districts; the jurisdiction of each of these units; the functions which they are empowered to perform; and the levels of service permitted are basic to a consideration of the problems which arise between counties and cities. At the request of the committee, the Legislative Counsel prepared a report dealing with the jurisdiction of counties, cities, and districts over seven selected governmental services and the limitations that may have been placed on each jurisdiction with respect to these services. The services studied by the counsel included law enforcement; fire protection; health and sanitation; public works including roads and bridges; libraries; recreation; and hospitals.

The following sections of this chapter set forth the code provisions granting jurisdiction to, and enumerating the powers of, counties, cities, and districts with respect to these seven types of services. A general observation of the counsel relating to these legal definitions of administrative and jurisdictional responsibility should, however, be noted at this juncture.

> ''In the absence of limitations, it is our opinion that each of the three bodies may provide services equal to the other two. This opinion is based on the principle that an expressly given power carries with it all powers reasonably necessary to carry it out. It follows from this principle, that unless expressly limited, it is up to the county, city or special district, as the case may be, to determine the level of service which it will furnish in a particular case.
>
> ''After reviewing the statutes with respect to each type of service, we find that in the great majority of cases there are no limitations set forth. Thus, there is no reason to hold that equal levels of service may not be furnished by each of the three bodies to the residents within their territorial jurisdiction.''[1]

LAW ENFORCEMENT

Counties

Section 5 of Article XI of the State Constitution provides:

> ''SECTION 5. The Legislature, by general and uniform laws, shall provide for the election or appointment, in the several counties, of boards of supervisors, *sheriffs*, county clerks, district attorneys, and such other county, township, and municipal officers as public convenience may require, and shall prescribe their duties and fix their terms of office.'' (Emphasis added.)

Pursuant to this section, the Legislature has set forth the general duties of the sheriff in Sections 26600 and 26602 of the Government Code. Section 26600 provides:

> ''26600. The sheriff shall preserve peace, and to accomplish this object may sponsor, supervise, or participate in any project of crime prevention, rehabilitation of persons previously convicted of crime, or the suppression of delinquency.''

Section 26602 provides:

> ''26602. The sheriff shall prevent and suppress any affrays, breaches of the peace, riots, and insurrections which come to his knowledge, and investigate public offenses which have been committed.''

With respect to traffic control, the sheriff is charged with the general enforcement of the penal laws, including traffic violations, and the California Highway Patrol has not been given exclusive authority over such violations in the unincorporated area of a county. Section 26601 reads:

> ''26601. The sheriff shall arrest and take before the nearest magistrate for examination all persons who attempt to commit or who have committed a public offense.''

The language is unrestricted and does not exclude traffic offenses. In the act creating the Division of Motor Vehicles (Chapter 266, Statutes of 1923), Section 30 deals with traffic officers, and the chief of the division is directed to appoint ''a sufficient number of state inspectors and traffic officers to enforce the provisions of this act in each of the counties of the State and all inspectors and traffic officers appointed as provided herein are hereby vested with the authority of peace officers for the purpose of enforcing the provisions of this act.''

Almost precisely the same language is used in Chapter 478, Statutes of 1931, the act creating the California Highway Patrol. In neither act is there any provision that the traffic officers or Highway Patrol have superseded the sheriff as to traffic offenses, merely a provision that they have the powers of peace officers as to traffic offenses. It consequently appears that as to such offenses both the sheriff and the patrol have concurrent authority.

This conclusion is further strengthened by the existence of Section 771 of the Vehicle Code which provides for the disposition of fines and forfeitures following arrests by county officers. This provision with minor changes has been in the law since 1915 and was included in the 1923 act and unchanged by the 1931 act. Consequently arrests by county officers for traffic violations must have been continuously in the contemplation of the Legislature.

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[1] Letter from the Office of Legislative Counsel, dated July 31, 1952, which accompanied the report.

The only restrictions placed on the sheriff, and these are of a personal nature, are contained in Section 24004 of the same (government) code, which provides:

> "24004. A sheriff, clerk, or constable, or any of their deputies, shall not:
>
> "(a) Practice law.
>
> "(b) Act as a collector or for any collection agency in the county where he resides and holds office.
>
> "(c) Have as a partner a lawyer or collector or anyone who acts as a lawyer or collector for a collection agency."

Cities

The powers of a city to provide police protection are no broader than those granted the sheriff, although they stem from a different source.

In both fifth and sixth class cities, the powers of the police chief are expressly made coextensive to those of the sheriff. Section 41601 of the Government Code, dealing with sixth class cities, provides:

> "41601. For the suppression of riot, public tumult, disturbance of the peace, or resistance against the laws or public authorities in the lawful exercise of their functions, the chief of police has the powers conferred upon sheriffs by general law and in all respects is entitled to the same protection."

Section 41641, an exact replica of Section 41601, governs fifth class cities.

The laws governing other classes of cities depend on whether or not the city is chartered.

In the absence of charter provision, it is settled that the organization, regulation and control of the police departments of the various cities are governed by general law (*Craig* v. *Superior Court*, 157 Cal. 481, 108 P. 310). There are many statutes setting forth general regulations for police departments. However, where a freeholders' charter clearly shows an intention to regulate the subject of police, and to place the control thereof in the hands of municipal officers, such charter provisions prevail over the general law, it being expressly provided by the Constitution that it shall be competent for a city to make provision in a freeholders charter "for the manner in which, the times at which and the terms for which the members of the boards of police commissioners shall be elected or appointed; and for the constitution, regulation, compensation, and government of such boards and of the municipal police force." (Article XI, Section 8½.)

Districts

Police protection districts are of two types, those formed in unincorporated territory generally. The first is authorized by Section 20025 of the Health and Safety Code, which reads as follows:

> "20025. Any unincorporated town may, pursuant to this article, be formed into a district for equipping, and maintaining a police department, or for otherwise securing police protection, to protect and safeguard life and property."

The second is authorized by Section 20310 of the same code, and reads:

> "20310. Any unincorporated territory may, pursuant to this article, be formed into a district for equipping and maintaining a police department to protect and safeguard life and property."

These two sections are supplemented by Section 20070 of the same code, reading as follows:

> "20070. The district board shall adopt all rules and regulations necessary for the administration, operation, and maintenance of the district."

FIRE PROTECTION

Counties

A county is authorized to provide fire protection for its inhabitants by Section 4050, subdivision (a) of the Public Resources Code. It reads as follows:

> "4050. (a) The board of supervisors of any county shall have power to provide by ordinance that such county elects to assume responsibility for the prevention and suppression of all fires on all land in such county, exclusive of lands owned or controlled by the Federal Government or any agency thereof and exclusive of lands within the exterior boundaries of incorporated cities and inclusive of those areas in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the State. After the effective date of the contract hereinafter referred to, such county shall have and exercise all the duty, power, authority and responsibility for the prevention and suppression of all fires on all land in such county, exclusive of lands owned or controlled by the Federal Government or any agency thereof and exclusive of lands within the exterior boundaries of incorporated cities, and inclusive of those areas in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the State, which is vested in the Department of Natural Resources, the Division of Forestry or the State Board of Forestry, and such power, duty, authority and responsibility shall be assumed by the county for the duration of the contract."

It seems clear from this section that a county, if it chose, could provide fire protection for its inhabitants equal to that furnished by a city or a district.

Cities

The organization, maintenance and operation of a fire department by a chartered city is a municipal affair and as such is not subject to the control of the Legislature (*Armas* v. *City of Oakland*, 135 Cal. App. 411, 27 p. (2d) 666). Where there is no charter, or in the case of a charter showing an intention not to regulate the matter, general laws control.

General laws specifically permit and govern the formation of fire departments in unincorporated towns (Sections 14825-14860 of the Health and Safety Code). They also authorize the formation of various special districts that cities, as well as unincorporated territory, may avail themselves of to provide fire protection for their inhabitants. These districts will be discussed below.

As stated above, unincorporated towns are expressly authorized to form fire companies. This authorization appears in Section 14825 of the Health and Safety Code, which provides:

> "14825. Fire companies in unincorporated towns may be organized by filing with the county recorder a certificate signed by the foreman or presiding officer and by the secretary."

The duties of such companies appear in Sections 14841-14843, inclusive, of the same code. They read as follows:

> "14841. The chief of every fire company shall inquire into the cause and keep a record of every fire occurring in the town."
>
> "14842. He shall aid in the enforcement of all fire ordinances, examine buildings in process of erection, report violations of ordinances relating to prevention or extinguishment of fires, and when directed by the proper authorities institute prosecutions therefor."
>
> "14843. He shall perform such other duties as may be by proper authority imposed upon him."

The size of these companies is limited by Sections 14828 and 14829 of the same code, as follows:

> "14828. There shall not be in any one unincorporated town more than one county for each 1,000 inhabitants, but one company may be allowed in any town where the population is less than 1,000."
>
> "14829. An engine company may consist of not more than 65 certificate members; a hook-and-ladder company of not more than 65 certificate members; and a hose company of not more than 25 certificate members."

Districts

County Fire Protection Districts. Unincorporated territory within a county may be formed into a county fire protection district by complying with the procedure laid down in Chapter 2 of Part 3 of Division 12 of the Health and Safety Code.

Section 14400 of the same code authorizes the formation of such a district. It provides:

> "14400. Any portion of a county composed of unincorporated territory and not including any forest land protected by the State Board of Forestry or in a manner approved by the State Board of Forestry, may be formed into a county fire protection district pursuant to this chapter."

Sections 14401 and 14402 permit a sixth-class city, adjacent to such a district, to become part of the district, merely by adopting an ordinance showing its intention and desire to be embraced within the district, and by filing a certified copy of this ordinance with the Secretary of State and with the board of supervisors of the county within which the district is located.

The general powers of the governing body of the district are set forth in Section 14440, which states:

> "14440. The board is the governing body of the district and may make and enforce all rules and regulations necessary for the administration and government of the district for the furnishing of fire protection to, and for the elimination of fire hazards in, the district."

Fire Protection Districts in One or More Counties. Unincorporated territory may also be formed into a fire protection district under the authority of Section 14600 of the Health and Safety Code, which provides:

> "14600. Contiguous unincorporated territory lying within one or more counties and not included in any other fire protection district and not including timberland patrolled by the State Board of Forestry or in accordance with its rules and regulations, may be formed into a county fire protection district in the manner provided in this chapter."

The powers of a district formed under this chapter are enumerated in Sections 14680 and 14681, which provide:

> "14680. The directors shall manage and conduct the business and affairs of the district.
>
> "14681. They shall make and enforce all rules and regulations necessary for the administration and government of the district and for the furnishing of fire protection to it."

Fire Protection Districts in Unincorporated Areas. Under this chapter any unincorporated area in the State may be organized as a fire district. Authority for this organization is contained in Section 14005 of the Health and Safety Code, which provides:

> "14005. Any unincorporated area of this State may be organized as a fire district and may equip and maintain a fire department for the purpose of protecting property from destruction by fire."

The general powers of the district are contained in Article 4 of Chapter 1 of Part 3 of Division 12 of the same code. Under Section 14075, the board is given power to purchase equipment and to hire personnel; under Section 14076, to adopt a seal; under Section 14077, to acquire real and personal property; under Section 14078, to construct suitable fire houses and other buildings or structures; and under Section 14079, to dispose of unsuitable property.

Metropolitan Fire Protection Districts. The authority to form a metropolitan fire protection district is found in Section 14325 of the Health and Safety Code, which provides:

> "14325. Any city or cities, county or counties, or combination thereof, or portions of either or both, or combinations thereof, may be formed into a metropolitan fire protection district."

The authorized purposes for such a district are contained in Section 14326 of the same code, which provides:

> "14326. The purposes for which a district may be formed are:
>
> "(a) The prevention and extinguishing of fires on brush covered or forest covered lands within the district.
>
> "(b) The acquisition, construction, and maintenance of roads, water pipelines, fire hydrants, water tanks, pumping plants, reservoirs, firebreaks, trails, and other works necessary or convenient for the prevention and extinguishing of fires.
>
> "(c) The issuance of bonds and the payment thereof and interest thereon and the expenditure of money raised thereby for carrying out the purposes for which the district is established."

It is clear, from a reading of these sections, that the power possessed by this type of district is much narrower than that possessed by the three previously discussed districts.

While it is true that it is given all of the necessary powers to carry out the purposes for which it is established, its purposes are limited, the main one being to combat fire on brush covered and forest covered land. This would not entitle it to furnish services within the district equal to those furnished by city fire departments.

It is our opinion, therefore, that a metropolitan fire protection district does not have the power to furnish services within the district equal to those furnished on a municipal level.

PUBLIC HEALTH

Counties

Section 450 of the Health and Safety Code sets forth the duty of the boards of supervisors with respect to the public health. It provides:

> "450. The board of supervisors of each county shall adopt orders and ordinances necessary for the preservation of the public health in the unincorporated territory of the county, not in conflict with general laws, and provide for the payment of all expenses incurred in enforcing them."

The duties of the county health officer are set forth in Section 452 of the same code, as follows:

> "452. The county health officer shall enforce and observe in the unincorporated territory of his county, all of the following:
>
> "(a) Orders and ordinances of the board of supervisors, pertaining to the public health and sanitary matters.
>
> "(b) Orders, quarantine and other regulations, and rules prescribed by the State Department of Public Health.
>
> "(c) Statutes relating to public health."

Identical sections relate to cities, thus, both have the same powers and may perform the same services.

Cities are authorized to hire the following personnel: Public Health Nurses (H. & S. Section 600); Dentists and Dental Hygienists (H. & S. Section 700); Sanitarians (H. & S. Section 541). They are authorized to expend funds for rodent control under Section 1805 of the same code.

Identical powers are given to the county by the following sections: Public Health Nurses (H. & S. Section 603); Dentists and Dental Hygienists (H. & S. Section 702); Sanitarians (H. & S. Section 541). Counties also are authorized to expend funds for rodent control under Section 1805 of the Health and Safety Code.

Cities

Cities, under their police power, have the right to legislate for the public health, so long as such legislation does not conflict with the Constitution or with general law (*Stanislaus County* v. *Stanislaus,* 8 Cal. 2d 378, 65 P. 2d 1305).

Public health, being a matter of state-wide concern, is not a "municipal affair" and state legislation thereon is superior to provisions in a city charter.

As stated above, the Legislature has given the same power to cities as it has given to counties. Section 500 of the Health and Safety Code, just like Section 450 of the same code, which deals with counties, grants a city power to regulate sanitary matters by ordinance, and to make such rules and regulations as are necessary in order to properly supervise all matters pertaining to the sanitary conditions of the city. Section 504, which is identical to Section 452, relating to counties, directs the city health officer to enforce these city ordinances and orders, other orders put out by the State Department of Public Health, and all statutes relating to the public health.

It should be mentioned that the boards of supervisors have power to appoint a health officer for any unincorporated town. This officer has the same duties as the county and city health officers. He is under the supervision of the county health officer.

Districts

Section 900 of the Health and Safety Code authorizes the formation of a local health district.

Section 903 of the same code defines the territory which such a district may comprise. It provides:

> "903. A district may include incorporated or unincorporated territory, or both, in one or more counties.
>
> "The territory of the district shall consist of contiguous parcels only.
>
> "The territory of a city shall not be divided."

Its powers are contained in Section 936, which reads as follows:

> "936. A district may do any or all of the following:
>
> "(a) Have and use a corporate seal and alter it at pleasure.
>
> "(b) Sue and be sued in all actions and proceedings.

"(c) Purchase, receive, have, take, hold, lease, use, and enjoy property of every kind and description, both within and without the limits of the district, and control, dispose of, convey, and encumber it and create a leasehold interest in it for the benefit of the district.

"(d) Acquire, construct, maintain, and operate all works and equipment necessary for the inspection of water, milk, meat, and other foods.

"(e) Acquire, construct, maintain, and operate all works and equipment necessary for the extermination of rodents.

"(f) Acquire, construct, maintain, and operate all works and equipment necessary for the disposal of garbage and waste.

"(g) Employ public health nurses and health visitors and cooperate with educational authorities in health inspection in public or private schools in the district.

"(h) Exercise the right of eminent domain for the purpose of acquiring real or personal property of every kind necessary to the exercise of any of the powers of the district.

"(i) Enforce all statutes relating to the public health and vital statistics, and all orders, quarantine regulations, and rules prescribed by the State Department of Public Health and other rules and regulations issued under the provisions of this code.

"(j) Enforce such local orders and ordinances pertaining to health and sanitary matters within the district as may be authorized by the appropriate local authorities.

"(k) Unite with any other local health district in the exercise of any of the powers granted to and vested in the district, the cost to be paid by each district in such proportion as may be agreed upon by the respective district boards.

"(*l*) Exercise all other needful powers for the preservation of the health of the inhabitants of the district, whether the powers are expressly enumerated in this chapter or not.

"The powers granted in this chapter shall be liberally construed for the purpose of securing the well-being of the inhabitants of the district."

PUBLIC WORKS, INCLUDING ROADS AND BRIDGES

Counties

Public works is a rather generally understood but ill-defined term which includes all sorts of major capital outlay projects of a very concrete nature such as streets and highways, sanitary sewers, storm drains, and governmental service buildings. In addition, there are important projects which may or may not be defined as public works such as public housing, water and power, and commerce facilities. Maintenance and repair are problems of public works just as much as original engineering and construction.

These are discussed in the order in which they appear in the preceding paragraph:

Streets and Highways. The authority of the boards of supervisors with respect to streets and highways is contained in Sections 941, 941.1, and 943 of the Streets and Highways Code. They provide:

"941. Boards of supervisors shall by proper order cause those highways which are necessary to public convenience to be established, recorded, constructed, and maintained in the manner provided in this division.

"941.1. Boards of supervisors may do any and all things necessary to lay out, acquire, and construct any section or portion of any street or highway within their jurisdiction as a freeway and to make any existing street or highway a freeway.

"943. Such board may:

"(a) Acquire any real property or interest therein for the uses and purposes of county highways. When eminent domain proceedings are necessary, the board shall require the district attorney to institute such proceedings. The expense of and award in such proceedings may be paid from the general road fund or the general fund of the county, or the road fund of any district benefited.

"(b) Lay out, construct, improve, and maintain county highways.

"(c) Incur a bonded indebtedness for any of such purposes, subject to the provisions of Section 944.

"(d) Construct and maintain stock trails approximately paralleling any county highway, retain and maintain for stock trails the right of way of any county highway which is superseded by relocation. The county shall not be liable in any way for any damages resulting from the use of such stock trail by any vehicle. Such stock trails shall not be included in the term 'maintained mileage of county roads' as that term is used in Chapter 3 of Division 3 of this code."

Sanitary Sewers. The authority of a county to provide a sewerage system is contained in Section 25825 of the Government Code, which provides:

"25825. The board of supervisors may construct, maintain, and operate within or without the county a sewerage system and sewage disposal or treatment plant whenever such project has been recommended by the county health officer to be necessary to the health of the inhabitants of such county and such recommendation is given in writing and spread upon the minutes of the meeting of the board of supervisors, and whenever the necessity for such project to the county as a whole and the area to be directly served has exhausted its ability to finance construction of such project is found to exist by the affirmative vote of four-fifths of the members of such board. The board of supervisors may assist any sanitary or sewer district formed under the provisions of the Health and Safety Code of the State of California by contributing to said district county general funds to finance the construction of any project commenced by said district, said contribution not to exceed fifteen percent (15%) of the cost thereof, and whenever such project has been recommended by the county health officer to be necessary to the health of the inhabitants of such county and such recommendation is given in writing and spread upon the minutes of the board of supervisors, and whenever the necessity for such project to the county as a whole and the inability of the district to finance the construction of such project is found to exist by the affirmative vote of four-fifths of the members of such board.

"This section shall not limit in amount the proceeds of bonds to be contributed to any district, pursuant to the provisions of Section 29901.5 of the Government Code.

"The findings and determination made pursuant to this section shall be final and conclusive upon all persons in the absence of actual fraud."

As shown by this section, the only limitation is that the area to be directly served must have exhausted its ability to finance the construction of such a system.

Storm Drains. No statute has been found which directly authorizes a county to construct a system of storm drains. If the necessity exists for such a system, the county boards of supervisors are authorized to form a special district to provide the system needed.

Governmental Service Buildings. The authority of a county, with respect to public buildings is contained in Section 25351 of the Government Code, which provides:

> "25351. The board may construct, lease, build, rebuild, furnish, refurnish, or repair buildings for a hospital, almshouse, courthouse, jail, historical museum, aquarium, art gallery, art institute, exposition building for exhibiting and advertising farming, mining, manufacturing, livestock raising, and other resources of the county, stadium, and such other public buildings as are necessary to carry out the work of the county government."

Public Housing. Section 34240 of the Health and Safety Code sanctions the establishment of housing authorities. It provides:

> "34240. In each county and city there is a public body corporate and politic known as the housing authority of the county or city. The authority shall not transact any business or exercise its powers unless, by resolution, the governing body of the county or city declares that there is need for an authority to function in it."

Thus this section provides that both a county and a city may set up housing authorities.

The powers of such authorities are set forth in Sections 34311 and 34312 of the same code. They provide:

> "34311. An authority may:
>
> "(a) Sue and be sued.
>
> "(b) Have a seal and alter it.
>
> "(c) Have perpetual succession.
>
> "(d) Make and execute contracts and other instruments necessary or convenient to the exercise of its powers.
>
> "(e) Make, amend, and repeal by-laws and regulations, not inconsistent with this chapter, to carry into effect the powers and purposes of the authority.
>
> "34312. Within its area of operation, an authority may:
>
> "(a) Prepare, carry out, acquire, lease, and operate housing projects.
>
> "(b) Provide for the construction, reconstruction, improvement, alteration, or repair of all or part of any housing project."

Section 34208 of the same code prohibits one of the authorities from acting within the territorial jurisdiction of the other, provided that the other has been set up.

In that both types of authority have the same powers, there is no need to discuss whether each can equal the other in providing this type of service.

Water and Power. Section 25690 of the Government Code provides:

> "25690. The board of supervisors may acquire, develop, distribute, and sell water to the county and its inhabitants for domestic, irrigation, agricultural, and other beneficial uses."

Section 25692 of the same code provides:

> "25692. The board may acquire, construct, repair, and manage a water system, pumps, aqueducts, reservoirs, and all other works necessary or proper for supplying water for the use of the county and its inhabitants."

As far as may be ascertained, it is not a county function to supply power to the inhabitants of the county. This is taken care of by the provisions authorizing the formation of county power pumping districts, which will be discussed under the districts division.

Commerce Facilities. Section 4131 of the Harbors and Navigation Code grants power to counties to regulate their harbors. It reads as follows:

> "4131. Any county may improve, develop, protect, and maintain one or more or all of the harbors within its boundaries, upon the conditions, in accordance with the procedure, and in the manner in this article provided."

A great deal of harbor improvement work is delegated to special districts, and is discussed under the districts division.

Cities

Streets. The streets of a city belong to the people of the State and the use thereof is an inalienable right of every citizen, subject to legislative control or such reasonable regulations as to the traffic thereon or the manner of using them as the Legislature may deem wise or proper to adopt and impose. Except as to municipal affairs concerning which cities which have freeholders' charters are given exclusive authority to pass ordinances, and except where the State has relinquished control to municipalities, the State, in its sovereign capacity, has the original right to control streets for the public use, and for this purpose may grade and repair them and regulate traffic thereon.

It is well established that the opening, laying out the improving of streets are municipal affairs, within the meaning of the Constitution. Thus, if the city has a freeholders' charter, it may carry out these functions. If it does not have such a charter or in a case where the charter shows an intention not to regulate the matter, it must conform to the general state laws on the subject.

In California, ample authority has been granted to municipal authorities for the opening, improvement and closing of streets.

From this it is seen that both cities and counties have broad powers with respect to streets. Due to the nature of the subject matter, it is difficult to compare the two. However, there appears to be no reason why a county could not, if it deemed necessary, provide a system of streets in an unincorporated area equal to that furnished in a city.

The same principles and reasoning apply also to city sewers, storm drains and public buildings. Cities, as well as counties, are authorized to establish a housing authority to provide public housing. As far as harbors are concerned, the State has plenary authority. To provide for the maintenance of city harbors, the Legislature has authorized the formation of special districts, which are discussed under the districts division.

Districts

Streets and Highways. Section 25025 of the Streets and Highways Code authorizes the establishment of Joint Highway Districts. It provides:

> "25025. Districts, to be composed of two or more counties, may be created in accordance with this part for the purpose of improving public highways."

The powers of such a district are set forth in Section 25050 of the same code, which provides:

> "25050. The district, acting through its board of directors, shall have power to:
>
> "(a) Improve public highways.
>
> "(b) Issue bonds and levy and impose taxes and assessment taxes upon property within the boundaries of the district.
>
> "(c) Accept in the name of the district all gifts, donations or contributions from any source whatsoever made to further the purposes of the district.
>
> "(d) Exercise the right of eminent domain for the purpose of acquiring lands or rights of way for any of the authorized purposes of the district.
>
> "(e) Acquire and use such personal property as may in the opinion of the board of directors be necessary for the exercise of the powers granted by this part.
>
> "(f) Employ such labor and services as may in the opinion of the board of directors be necessary for the exercise of the powers granted by this part.
>
> "(g) Arrange for the safekeeping of all funds belonging to the district and appoint a treasurer and depositary to keep the funds of the district and exact from such treasurer and depositary such surety bonds or other security as the board of directors deems proper.
>
> "(h) Sue and be sued.
>
> "(i) Adopt a seal.
>
> "(j) Exercise all other powers expressly granted to it together with such powers as are reasonably implied therefrom and which are necessary and proper to carry out the objects and purposes of the district."

These powers are very broad and are equal to those possessed by both cities and counties.

Sanitary Sewers. There are many types of sewer districts authorized.

First, Section 6420 of the Health and Safety Code authorizes the formation of a sanitary district.

The powers of such a district are set forth in Chapter 4 of Part 1 of Division 6 of the same code. Sewers are specifically dealt with in Section 6512, which reads as follows:

> "6512. It may acquire, construct, reconstruct, alter, enlarge, lay, renew, replace, maintain, and operate such garbage dump sites and garbage collection and disposal systems, sewers, drains, septic tanks, and sewerage collection, outfall, treatment works and other sanitary disposal systems, and storm water drains and storm water collection, outfall and disposal systems, as in the judgment of the board shall be necessary and proper, and in the performance of these functions, either in or out of the district, it may join with any county or municipality or any other district or governmental agency.
>
> "Before any garbage dump shall be established the location shall first be approved by the county health officer, and in addition, if the location is within two miles of any city the consent of the governing body of the city shall first be secured."

Second, the formation of county sanitation districts is authorized by Section 4703 of the Health and Safety Code.

Section 4741 of the same code authorizes the establishment of a sewerage system. It reads as follows:

> "4741. It may acquire, construct and complete within or without the district, sewerage collection, treatment and disposal systems, including sewerage treatment plants, outfall, intercepting, collecting and lateral sewers, pipes, pumps, machinery, easements, rights of way, and other works, property or structures necessary or convenient for sewage collection, treatment and disposal. In addition it may construct, maintain, and operate a refuse collection and disposal system. No such sewage system or refuse collection and disposal system shall be constructed, maintained, or operated in any city not in the district except by consent granted by the unanimous vote of the governing body of the city."

Third, municipal sewer districts are authorized by Section 4605 of the Health and Safety Code, which provides:

> "4605. The governing body of any city may create from time to time in the city separate sewer

districts whenever in its judgment the districts are necessary or convenient for proper sanitation and drainage.''

Section 4634 sets forth the authority of the city in this matter. It reads:

> ''4634. Instead of letting contracts for the work, the city may itself construct or complete the sewer or improvement, and buy the necessary materials, and employ the necessary labor.''

Fourth, Section 4870 of the Health and Safety Code authorizes the formation of sewer maintenance districts. It provides:

> ''4870. Any portion of the unincorporated territory of a county in which lateral or collecting sanitary sewers have been installed, for the maintenance and repair of which provision is not otherwise made, may be formed into a district.''

The powers of the district are set forth in Section 4885 of the same code, which provides:

> ''4885. The board is the governing body of the district and may make and enforce all rules and regulations necessary for the administration and government of the district and for the cleaning, repair, reconstruction, renewal, replacement, operation, and maintenance of lateral and collecting sewers in it.''

It would appear from this section that such district does not have the power to construct an original sewerage system, but merely to maintain and improve an existing one. Thus, its powers are not as extensive as are those of a city.

Fifth, Section 2 of Chapter 24 of the Statutes of 1939 (Deering Act 5192a) authorizes the formation of a municipal sewer district. In general, the act gives broad powers to a municipality to purchase an existing sewerage system or to construct such a system. The operation is carried out by the formation of a special district.

Storm Drains. Section 1 of Chapter 1100 of the Statutes of 1939 (Deering Act 2208a) authorizes the formation of storm drainage districts. It reads as follows:

> ''Section 1. Whenever the maintenance of storm drain improvements or of other water courses or drainage channels within a territory in which provision therefor is not otherwise made by law, will protect property or promote the welfare, health or safety of the residents therein, the board of supervisors of the county in which said territory is located may create and govern a storm drain maintenance district comprising either unincorporated territory or both incorporated and unincorporated territory, as in this act provided. Such maintenance may include any or all of the following work: The cleaning, repairing, renewal, replacement, widening or straightening of existing storm drain structures, water courses or drainage channels, and the installation of appurtenant structures when necessary for the adequate functioning of such drainage facilities.''

The Storm Drain Maintenance Act (Stats. 1937, p. 566, Deering Act 2208) also authorizes the formation of such a district. The two acts are very similar.

Both, however, seem to be limited to maintaining an existing sewerage system rather than constructing an original one.

In addition, both are limited to situations in which provision is not otherwise made by law. This would not affect counties for they do not directly furnish a storm drainage system but act through districts. Cities may undertake such a project, and if they do so their regulation will supersede that of the district.

A third type of drainage district is authorized by an act appearing on page 204 of the Statutes of 1885, its latest amended form on page 1667 of the Statutes of 1937 (Deering Act 2200). Under this act, the owners of two-thirds of the land within the district may petition for its formation. Once the district is formed, it may construct and maintain a drainage system and has all powers necessary to enable it to do so.

Of similar nature is the Drainage District Act of 1903 (Chapter 335 of the Statutes of 1941, Deering Act 2202).

Governmental Service Buildings. This subject is not a proper one for the formation of a district. It is closely related to the governmental operations of both cities and counties and each of them deal with it without the aid of districts.

Public Housing. The housing authorities, previously discussed, are similar in nature to districts. There are no public housing districts.

Harbors. There are seven types of districts dealing with harbors and ports.

The first is the municipal port district. Formation of such a district is authorized by Section 5100 of the Harbors and Navigation Code. This section also sets forth the powers of the district. It reads as follows:

> ''5100. A district for the acquisition and construction of harbor works and improvements, including railroad and water transfer and terminal facilities, for the development, operation, maintenance, control, regulation and management of harbors and other waters, and for the promotion of commerce, navigation and fishery may be established, organized and governed as provided in this part, and it may exercise the powers in this part expressly granted.''

The only limitation on this district is in the extent of its jurisdiction. Section 5101 of the same code limits the districts to municipalities only and prohibits the dividing of a municipality in the formation of the district.

Next comes the harbor improvement district. This is authorized by Section 5820 of the Harbors and Navigation Code. This section also enumerates the purposes of such district. It reads as follows:

> ''5820. Any portion of a county in this State, the exterior boundaries of which include a bay, harbor, inlet or navigable water of the Pacific Ocean, may be formed into a district for the improvement or development of a harbor.

> "The work may include the dredging of channels, shipways, ship berths, anchorage places and turning basins, the construction of jetties, breakwaters, bulkheads, seawalls, wharfs, ferry slips and warehouses."

This district is limited in scope. Once the harbor is improved or developed control passes from the district back to the board of supervisors of the county and the county is then responsible for the upkeep thereof (5900.6 of the said code).

The third type of district is termed simply a harbor district. Section 6010 of the Harbors and Navigation Code authorizes its formation. It reads as follows:

> "6010. A county or portion of a county or city or portion of a city or more than one city with or without a portion of the unincorporated territory of a county, the exterior boundary of which includes a harbor, may be formed into a harbor district for the improvement or development of the harbor upon proceedings being taken pursuant to this part."

The powers of the board, the governing body of such district, are set out in great detail in Article 3 of Chapter 2 of Part 3 of Division 8 of the Harbors and Navigation Code. Section 6078 of the said code gives the board power to do all other acts necessary and convenient for the full exercise of its powers.

Just as in the case of a harbor improvement district, a harbor district is formed to improve or develop a harbor. Once the work is completed the district has no further purpose and no further powers.

The fourth type of district is the port district. Authority for its organization is contained in Section 6210 of the Harbors and Navigation Code, which provides:

> "6210. A district may be organized pursuant to this part. It shall include one municipal corporation and any contiguous unincorporated territory in any one county but a municipal corporation shall not be divided in the formation of a district.
>
> "Territory which may be annexed to a municipal corporation, which is in a district, is by virtue of the annexation a part of the district."

The powers of such district are set out at great length in Article 1 of Chapter 3 of Part 4 of Division 8 of the Harbors and Navigation Code. In general such a district has all of the powers necessary to regulate, improve and maintain a port. It is given powers equal to that of a city.

The fifth type of district is the recreational harbor district. Section 6402 of the Harbors and Navigation Code authorizes the formation of such a district. Section 6403 of the same code states the purposes of the district, and in addition, the limitations placed thereon. It reads as follows:

> "6403. Recreational harbors are harbors that are intended to be used for the pleasure and recreation of the public, including as well as all others the boating, fishing and bathing facilities afforded thereby.
>
> "Industrial or commercial activity shall not be permitted on any pier, wharf, jetty or breakwater or on any portion of the strand comprising the harbor, or upon any works or property adjacent or appurtenant excepting that, under the supervision and with the consent of the board, commercial enterprises may be conducted which will be conducive to and aid the pleasure and recreational facilities.
>
> "Any harbor created pursuant to this part and the lands, works and facilities incidental thereto shall retain its recreational character."

Thus, this district does not have the same general powers as are possessed by counties and cities. It is not designed to regulate harbors to the same extent, but merely to deal with recreational harbors. It might be said that this district has the same power with respect to recreational harbors as have cities and counties with respect to harbors generally, but the limitation placed on industrial activities limits it in its operations.

The sixth type of district is the river port district. Its formation is authorized by Section 6810 of the Harbors and Navigation Code, which reads as follows:

> "6810. A district may be organized pursuant to this part. A district may include any contiguous territory in one or more counties, contiguous to a navigable river or to any channel connected with a navigable river, but a municipal corporation shall not be divided in the formation of a district, and territory situated in a county in which there is located a duly organized and existing port district, created pursuant to Part 4 of this division, may not be included. Territory situated within the boundaries of any port or harbor district, organized or designated and existing under the provisions of any city charter, shall not be included. Any territory, annexed to a municipal corporation, which is in a district, becomes a part of the district."

This section limits the district in that it cannot include territory of other harbor or port districts organized under the provisions of city charters. Other than this its powers are quite extensive, within its jurisdiction. These powers are enumerated in Article 1 of Chapter 3 of Part 6 of Division 8 of the Harbors and Navigation Code. Generally, such a district has all the powers necessary for the operation and development of a port, ports, and waterways within its territorial jurisdiction.

The seventh, and last type of district is the joint harbor improvement district authorized by Section 5710 of the Harbors and Navigation Code, which provides:

> "5710. Two or more contiguous counties, or any contiguous portions of two or more counties may be formed into a district for the improvement or development of a harbor if the exterior boundaries of the proposed district include a bay, harbor, inlet or navigable water of the Pacific Ocean.
>
> "The work may include the dredging of channels, shipways, ship berths, anchorage places and turning basins, the construction of jetties, breakwaters, bulkheads, sea walls, wharfs, slips, and warehouses."

As is evident, this section also sets out the type of work that such district may do. It is very similar to the Harbor Improvement Districts discussed above. Its purposes are limited to the improvement and development of harbors within its jurisdiction. Once the purposes are carried out, control passes from the district to the board of supervisors of the county. (Section 5783, H. & N. C.).

After examining all of these district acts, it is seen that all of these districts, except the Municipal Harbor District and the Port District, are limited in scope and cannot be deemed to have powers equal to those possessed by counties and cities.

LIBRARIES

Counties

County free libraries are authorized by Sections 22101 and 22102 of the Education Code. These sections provide:

> "22101. The boards of supervisors of the several counties may establish and maintain, within their respective counties, county free libraries pursuant to this chapter.
>
> "22102. The board of supervisors of any county may establish at the county seat a county free library for that part of the county lying outside of cities maintaining free public libraries, and outside of library districts maintaining free public libraries, and for all such additional portions of the county as elect to become a part of, or to participate in, the county free library system, as provided in this chapter."

The powers of the county with respect to such libraries are set forth in Section 22163 of the same code, which reads:

> "22163. The county free library is under the general supervision of the board of supervisors, which may:
>
> "(a) Make general rules and regulations regarding the policy of the county free library.
>
> "(b) Establish, upon the recommendation of the county librarian, branches and stations throughout the county and may locate the branches and stations in cities wherever deemed advisable.
>
> "(c) Determine the number and kind of employees of the library.
>
> "(d) Appoint and dismiss the employees upon the recommendation of the county librarian."

In addition to the county free libraries, maintained under Education Code Sections 22101 to 22180, inclusive, and supported by a tax upon the area served, the county may erect and maintain library buildings and provide service at charitable, detention and penal institutions out of the county general fund.

Section 26150 provides for the erection and maintenance of library buildings, rather than the library service. This is perhaps more readily apparent when it is considered that Section 26150 was, before codification of the Government Code, a part of Political Code Section 4041.18 which related entirely to construction of county buildings. Section 26151 authorizes the county to provide library service at charitable, detention and penal institutions of the county, and to pay the cost thereof from the general fund.

It consequently appears that county free libraries are maintained by a tax upon the area served, but library buildings and service to charitable, detention and penal institutions may be provided by the whole county as in the case of other county expenses.

The only limitations placed on the county are territorial. There is no reason to say that a county cannot provide library facilities within the area of its operation equal to those furnished by a city or by a district.

Cities

Section 22201 of the Education Code authorizes the establishment of a public library in a municipality. The section reads:

> "22201. The common council, board of trustees, or other legislative body of any city in the State may, and upon being requested to do so by one-fourth of the electors of the municipal corporation in the manner provided in this article, shall, by ordinance, establish in and for the municipality a public library if there is none already established therein."

The powers of the board of trustees of such library are set forth in Sections 22221-22228 of the Education Code. In general, the board is given all necessary powers to erect and maintain the library.

It is well to note that the board is not given control of any library not established pursuant to these provisions; e.g., established by private donation.

Districts

Sections 22601 and 22602 of the Education Code authorize the formation of a library district. They provide:

> "22601. A library district may be organized, as provided in this chapter. The library district may establish, equip, and maintain a public library for the dissemination of knowledge of the arts, sciences, and general literature and may exercise the powers granted or necessarily implied pursuant to this chapter.
>
> "22602. The library district may include incorporated or unincorporated territory, or both, in any one or more counties, so long as the territory of the district consists of contiguous parcels and the territory of no city is divided."

Article 3 of Chapter 5 of Division 11 sets forth the powers of such district. In general, these powers are equal to those possessed by either a county or city.

Library Districts in Unincorporated Towns and Villages. Section 22301 of the Education Code authorizes the establishment of a public library district for an unincorporated town or village. It provides:

> "22301. Any unincorporated town or village of this State may establish, equip, and maintain a public library for the dissemination of knowledge of the arts, sciences, and general literature, in accordance with this chapter."

The general powers of such district are set forth in Sections 22336-22343 of the same code. For the area covered, they equal those of the other divisions already discussed.

School District Libraries. Section 19051 of the Education Code authorizes the formation of libraries within school districts. It reads as follows:

> "19051. Libraries may be maintained under the control of the governing board of any school district."

This type of library is specialized in nature and no express powers are given the district to erect buildings or to operate libraries on a wide scale. It would appear that the function of such libraries is limited to school purposes, although residents of the district are entitled to use the library established.

RECREATION

Counties

Counties have broad powers with respect to providing recreation facilities for their residents. Section 25558 of the Government Code authorizes a county to provide free music to the public in connection with the maintenance of county owned parks and playgrounds or upon any appropriate public or patriotic occasion. Section 26100 of the same code authorizes a county to make plans and arrangements for a world's fair, trade fair, or other fair or exposition at which the resources of the county may be exhibited.

Section 5157 of the Public Resources Code authorizes a county to establish parks, beaches, and other recreation centers. This section provides:

> "5157. Any county may purchase or lease, or obtain by gift, lands located in the county, or in other counties and may hold, improve, and maintain such lands for public parks, public beaches, public recreation areas or public boulevards.
>
> "Before land situated in another county may be so acquired and held, improved, and maintained, the consent by resolution of the board of supervisors of that county shall be obtained. Land acquired in conformity with the requirements of this section is subject to the jurisdiction, laws and ordinances of the acquiring county."

Cities

Public recreation falls under the head of "municipal affairs" and it lies within the power of a city to regulate and encourage it. Thus a city, in the exercise of its police power, may go to great lengths in providing recreation for its inhabitants.

Districts

There are five types of districts dealing with recreation. They are as follows:

Recreation, Park and Parkway Districts. This type of district is authorized by Section 5403 of the Public Resources Code, which reads as follows:

> "5403. The governing body of any city or county may determine that the city or portion thereof, or a portion of the unincorporated area of the county, respectively, is in need of parks, recreation grounds, and parkway planting and that it should be formed into a district.
>
> "The governing body may also determine whether a tax ceiling may be provided for such district, and if so provided, that the tax ceiling may be changed from time to time by a majority of the voters at an election called upon petition of 1 percent of the qualified electors, but such tax ceiling shall not at any time exceed 25 cents per $100 of assessed valuation of the taxable property in the district."

The powers of such a district are set forth in Section 5411 of the same code, reading as follows:

> "5411. Except in districts having a board of directors, the governing body of a district shall be the governing body of the city or county in which the district lies. The governing body of the district may make and enforce all regulations necessary for the administration and government of the district and for the acquisition, improvement and maintenance of parks, recreation grounds, and parkways within the district. It may appoint agents and employees sufficient to maintain and operate the parks, recreation grounds, and parkways for the benefit of the district, and it may construct all needed structures and perform all other acts necessary to accomplish the purpose of this article."

County Recreation Districts. The powers of this type of district are contained in Section 5439 of the Public Resources Code. This section reads as follows:

> "5439. The trustees may erect one or more dams across a stream or river for the purpose of constructing a swimming pool in the district, may maintain, improve, and keep in a sanitary condition all community parks, community beaches, community recreational grounds, and community buildings within such districts, including the construction, maintenance, and operation of swimming pools and any other recreational facilities, and any other amusement facilities on any of such lands, and may also contract for a system of improvements or works for sewage disposal, and drainage, garbage disposal, fire protection, roads, bridges, road repair, bridge repair, trails, lights and playgrounds, and may lease or rent lands or property for recreational purposes, and they may make proper regulations for the management and operation of the district, including regulations binding upon all persons, with the object of effectuating the purposes of the district and, also, in connection with the use of the facilities of the district.
>
> "The trustees shall have the right and power to acquire by condemnation, gift, purchase or otherwise all lands, or use thereof or interest therein, and any other property or rights by them deemed necessary for the construction, maintenance, improvement and operation of the works, or the carrying out of the projects of the district, and may assume and discharge the existing indebtedness on such lands, or interest therein or other property rights so acquired. In case of condemnation proceedings the board shall

proceed in the name of the district under the provisions of Section 14 of Article I, as amended, of the Constitution of the State of California, and Title 7, Part 3 of the Code of Civil Procedure of California, and all pleadings, proceedings and process in said title provided shall be applicable to the condemnation proceeding hereunder.''

Regional Park Districts. Section 5541 of the Public Resources Code enumerates the powers of such district. It reads as follows:

> ''5541. A district may plan, adopt, lay out, plant, and otherwise improve, extend, control, operate, and maintain a system of public parks, playgrounds, beaches, parkways, scenic drives, boulevards, and other facilities for public recreation, for the use and enjoyment of all the inhabitants of the district, and it may select, designate, and acquire land, or rights in land, within or without the district, to be used and appropriated for such purposes. It may cause such parkways, scenic drives, and boulevards to be opened, altered, widened, extended, graded or regraded, paved or repaved, planted or replanted, repaired, and otherwise improved, and may do all other things necessary or convenient to carry out the purposes of this article.
>
> ''The board of directors of a district shall not interfere with control of any existing public park, playground, beach, parkway, scenic drive, boulevard, or other public property, owned or controlled by a municipality or county in the district, except with the consent of the governing body of the municipality, or of the county if the same is in unincorporated territory, and upon such terms as may be mutually agreed upon between the board of directors of the district and the governing body.''

Park, Recreation and Parkway Districts. This type of district is authorized by Section 5631 of the Public Resources Code, which reads as follows:

> ''5631. Any portion of the unincorporated area of any county not included in any other park, recreation and parkway district, and lying entirely outside any national forest, may be formed into a park, recreation and parkway district to acquire all necessary and proper lands, buildings, and equipment, and to do any necessary and proper construction work, including the planting of trees and shrubs, to secure, maintain and operate an adequate system of parks, recreation grounds, and facilities and parkways within the district.''

Regional Shoreline and Park Recreation Districts. Section 5681 of the Public Resources Code gives authority to form this type of district.

Its powers are contained in Section 5720 of the same code, reading as follows:

> ''5720. A district may plan, adopt, lay out, plant, and otherwise improve, extend, control, operate, and maintain a system of public parks, playgrounds, beaches, pleasure craft harbors, parkways, scenic drives, boulevards, and other facilities for public recreation, including harbors of refuge in case of emergency for all types of light draft vessels, for the use and enjoyment of all the inhabitants of the district, and it may select, designate, and acquire land, or rights in land, within or without the district, to be used and appropriated for such purposes. It may cause such parkways, scenic drives, and boulevards to be opened, altered, widened, extended, graded or regraded, paved or repaved, planted or replanted, repaired, and otherwise improved, and may do all other things necessary or convenient to carry out the purposes of this article.
>
> ''The board of directors of a district shall not interfere with control of any existing public park, playground, beach, pleasure craft harbors, parkway, scenic drive, boulevard, or other public property, owned or controlled by a municipality or county in the district, except with the consent of the governing body of the municipality, or of the county if the same is in unincorporated territory, and upon such terms as may be mutually agreed upon between the board of directors of the district and the governing body.''

HOSPITALS

Counties

Counties are authorized to establish a county hospital by Section 203 of the Welfare and Institutions Code, which reads as follows:

> ''203. The board of supervisors in each county may establish and maintain a county hospital, prescribe rules for the government and management thereof, appoint a county physician and other necessary officers and employees thereof, who shall hold office during the pleasure of the board and authorize said hospital to be a member of and maintain membership in any local, state or national group or association organized and operated for the promotion of the public health and welfare or the advancement of the efficiency of hospital administration and in connection therewith to use tax funds for the payment of dues and fees.''

There appear to be no restrictions on the facilities that may be established to maintain such a hospital.

Cities

It seems that a municipal corporation has no inherent power to establish and maintain hospitals, but such power may be delegated by the Legislature. (*San Francisco* v. *Boyle*, 191 Cal. 172, 215 Pac. 549.)

Section 37601 of the Government Code authorizes the establishment of hospitals in fifth and sixth class cities. It reads as follows:

> ''37601. Upon receiving a petition signed by 15 percent of the city electors, the legislative body shall submit to the electors at a general or special election the question whether a municipal hospital shall be established in the city.''

Such cities are given all of the powers necessary to establish and maintain this hospital.

Section 1 of the act appearing at page 9 of the Statutes of 1897 authorizes cities of the first class to erect and maintain a hospital.

Districts

The formation of hospital districts is authorized by Section 32001 of the Health and Safety Code. It reads as follows:

> "32001. A local hospital district may be organized, incorporated and managed as provided in this division and may exercise the powers herein granted or necessarily implied. Such a district may include incorporated or unincorporated territory, or both, or territory in any one or more counties. The territory comprising this district need not be contiguous but the territory of a municipal corporation shall not be divided."

The powers of such district are contained in Section 32121 of the same code, reading as follows:

> "32121. Each local hospital district shall have and exercise the following powers:
>
> "(a) To have and use a corporate seal and alter it at pleasure.
>
> "(b) To sue and be sued in all courts and places and in all actions and proceedings whatever.
>
> "(c) To purchase, receive, have, take, hold, lease, use and enjoy property of every kind and description within the limits of the district and to control, dispose of, convey and encumber the same and create a leasehold interest in same for the benefit of the district.
>
> "(d) To exercise the right of eminent domain for the purpose of acquiring real or personal property of every kind necessary to the exercise of any of the powers of the district.
>
> "(e) To administer any trust declared or created for hospitals of the district, and received by gift, devise, or bequest and hold in trust or otherwise, property situated in this State or elsewhere, and where not otherwise provided, dispose of the same for the benefit of such hospitals.
>
> "(f) To employ legal counsel to advise the board of directors in all matters pertaining to the business of the district, and to perform such functions in respect to the legal affairs of the district as the board may direct; and to employ such other officers and employees, including architects and consultants, as the board of directors deems necessary to carry on properly the business of the district.
>
> "(g) To prescribe the duties and powers of the manager, secretary and other officers and employees of any such hospitals; to determine the number of and appoint all such officers and employees, and to fix their compensation, which said officers and employees shall hold their offices or positions at the pleasure of said boards.
>
> "(h) To do any and all things which an individual might do which is necessary for and to the advantage of a hospital and a nurses' training school.
>
> "(i) To establish, maintain and operate one or more hospitals, situated within the territorial limits of the district.
>
> "(j) To do any and all other acts and things necessary to carry out the provisions of this division.
>
> "(k) To acquire, maintain, and operate ambulances or ambulance services within and without the district."

CHAPTER III

NAPA COUNTY

GENERAL CHARACTERISTICS OF NAPA COUNTY

Physical and Economic Characteristics

Napa County ranked twenty-ninth in size of population and forty-eighth in size of area in 1950. Situated on the northern end of San Francisco Bay, it comprises an area of 790 square miles. Eighty-six percent of the property of the county is privately held, about four-fifths of this consisted of farm acreage, which yielded agricultural products valued at about $13,000,000 in 1950. In this same year there was a rapid growth in manufacturing, a development which will require a reconsideration of Napa County's historical status as a predominantly agricultural area.

The county seat is located at Napa, the major trade and industrial city. Most of the manufacturing industries, except the wineries, are located in the City of Napa and in nearby areas. St. Helena and Calistoga are the two other incorporated cities in the county. Figure 1 presents a map of Napa County showing cities, unincorporated urban fringe areas and rural communities.

Population Distribution

Only 11 California counties showed greater relative increases in population than Napa County during the decade from 1940 to 1950. The 1940 census reported 28,503 persons in the county. Of this population 10,622, or 37.3 percent, resided in cities. By 1950 total population had increased 63.5 percent to 46,603, with 17,294 persons, or 37.1 percent, living in cities. Table 1 provides a comparison of the population growth in Napa County between 1940 and 1950 with that experienced in several other selected counties.

TABLE 1

NAPA COUNTY

POPULATION INCREASES FOR NAPA COUNTY AND SELECTED COUNTIES OF COMPARABLE SIZE

1940 to 1950

County	*Population* *1940*	*Population* *1950*	*Percentage increase from 1940 to 1950*
NAPA	28,503	46,603	63.5
Kings	35,168	46,768	33.0
Mendocino	27,864	40,854	46.6
Placer	28,108	41,469	47.5
San Luis Obispo	33,246	51,417	54.6

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

Table 2 shows population growth in Napa County by incorporated and unincorporated areas. Total county population increased 63.5 percent from 1940 to 1950; city population gained 62.8 percent during this same period; and the unincorporated areas experienced a 63.9 percent gain. While the unincorporated areas showed a slightly larger growth than cities in the aggregate, the City of Napa reported the largest gain in population (75.4 percent) during this decade. Figure 2 presents these trends graphically and shows both the absolute increases in population between 1900 and 1950 and the relative changes in the distribution of the population which accompanied the increase from 1940 to 1950. There are strong indications that this growth has continued since 1950. Voter registration between 1950 and 1952 increased by 9.5 percent and if this rate of increase were applied to the 1950 population figure, the present population of Napa County would approximate 51,000.

TABLE 2

NAPA COUNTY

POPULATION OF INCORPORATED AND UNINCORPORATED AREAS

1940 and 1950

Area	*Population* *1940*	*Population* *1950*	*Percent of total population* *1940*	*Percent of total population* *1950*	*Percentage increase 1940 to 1950*
Incorporated areas	10,622	17,294	37.3	37.1	62.8
Napa	7,740	13,579	27.2	29.2	75.4
St. Helena	1,758	2,297	6.2	4.9	30.7
Calistoga	1,124	1,418	3.9	3.0	26.2
Unincorporated areas	17,881	29,309	62.7	62.9	63.9
Total	28,503	46,603	100.0	100.0	63.5

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

The distribution of the population of Napa County is compared with that of several other counties of comparable population size in Table 3. The proportion of the total urban population in Napa County residing in unincorporated areas is considerably less than that shown by two other counties of similar population; viz., Kings and San Luis Obispo.

Most of the urban population development in Napa County is located in Napa Township. More than three-fourths of the county residents live in Napa Township, which includes the southern third of the county plus a strip about eight miles wide running along the eastern boundary to the northernmost corner. Of the total population of 36,414 in Napa Township in 1950, 13,579 persons lived inside the City of Napa. No exact count of the population bordering on the city is, however, available but estimates based on approximate dwelling unit counts and school attendance figures placed the "fringe" population at about 7,000 living within two miles of the city limits. The air photograph of the City of Napa and its environs (Figure 3) clearly shows these heavily populated areas outside the city. The four largest are: *Alta Heights*, to the northeast; *West of Solano*, on the west side; *Gordon Terrace*, to the south; and *Shurtleff*, to the southeast.

FIGURE 1

NAPA COUNTY
INCORPORATED AND UNINCORPORATED AREAS

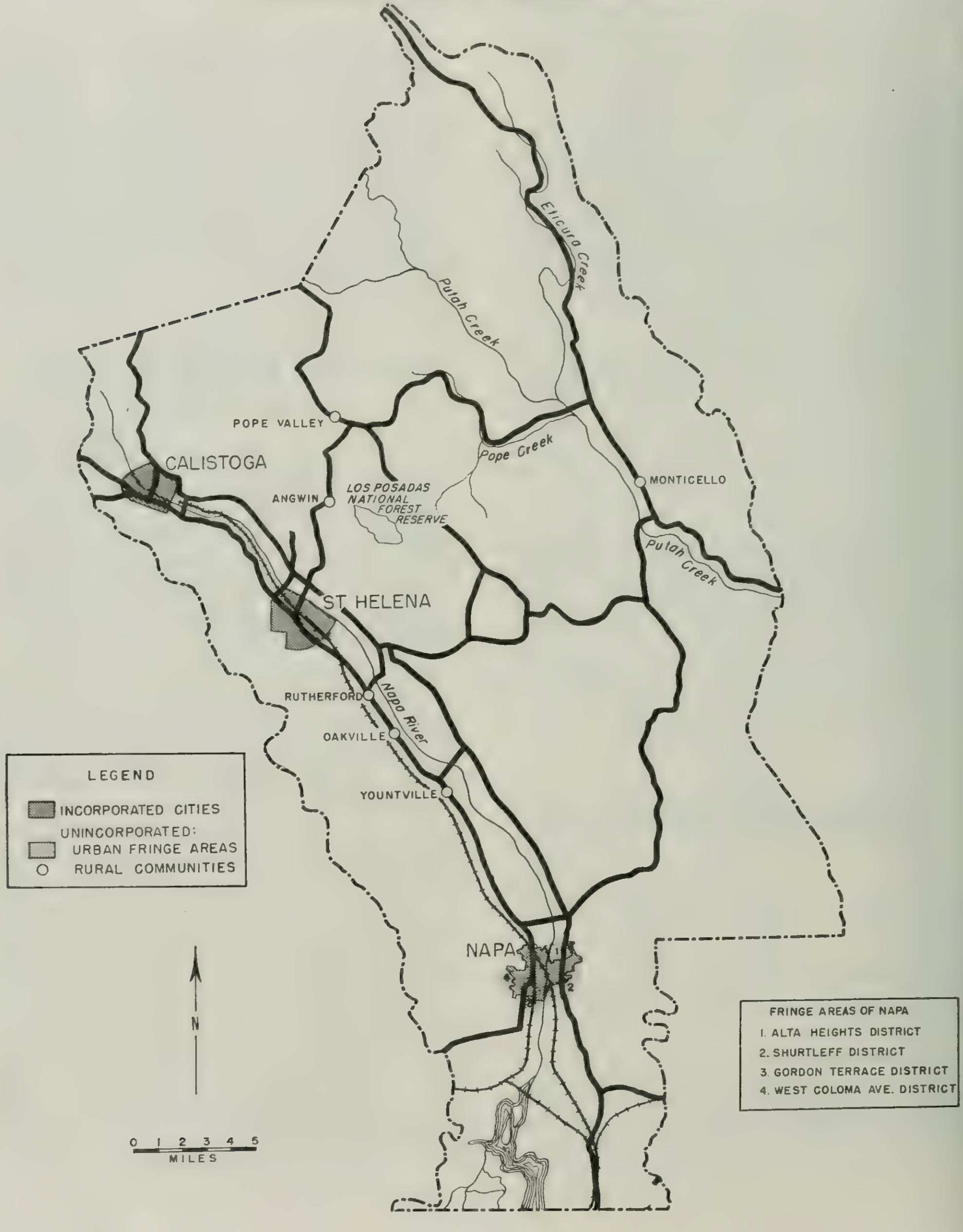


FIGURE 2

NAPA COUNTY
POPULATION OF CITIES AND UNINCORPORATED AREAS
1940 and 1950

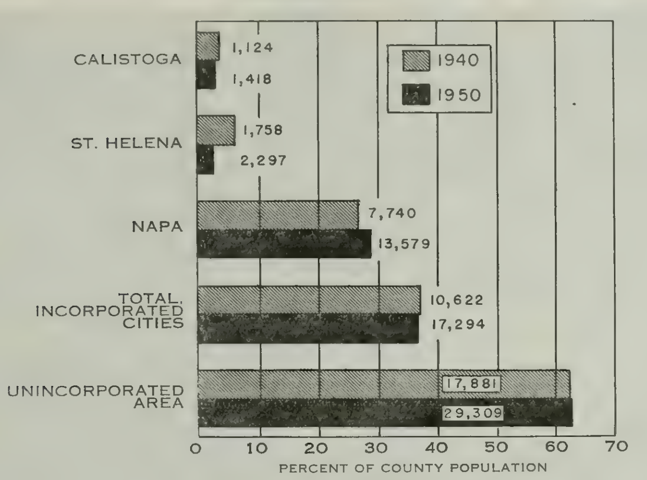


TABLE 3

NAPA COUNTY
URBAN POPULATION IN NAPA COUNTY AND IN SELECTED COUNTIES OF COMPARABLE SIZE
1950

	Percent of total county population			*Unincorporated urban area population as a percentage of total urban population*
County	*Urban areas*[a]	*Cities*	*Unincorporated urban areas*	
NAPA	32.4	29.1	3.3	10.2
Kings	36.7	28.2	8.5	23.2
Mendocino	30.9	30.9	--	--
Placer	32.1	32.1	--	--
San Luis Obispo	49.1	37.0	12.1	24.7
Average	36.2	31.5	8.0[b]	19.4[b]

NOTES:

[a] Urban areas in this table are in accordance with the urban definition established for use in the 1950 Census. Under this definition, the urban population comprises all persons living in (a) places of 2,500 inhabitants or more incorporated as cities; (b) the densely settled urban fringe, including both incorporated and unincorporated area, around cities of 50,000 or more; and (c) unincorporated places of 2,500 inhabitants or more outside any urban fringe.

The data shown in this table are for comparative purposes only and are not comparable with the data shown in Table 2.

[b] Average computed only for the three counties having population in unincorporated urban areas.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951.

Other concentrations of population lying outside cities are much smaller than the urban fringe of Napa. Three are located along U. S. Highway 29, the main north-south route, viz., Yountville, Oakville and Rutherford. Three others lie to the east of Calistoga; viz., Pope Valley, Angwin and Monticello. With the exception of Angwin, none of these concentrations of population exceeds 500 persons and most of them are considerably less than 500. Angwin is the site of Pacific Union College. It has a population of about 2,000 including 1,000 students, of whom 250 reside off-campus in the Angwin area. However, Angwin can hardly be considered urban in character, since it is spread over a large wooded area. The State Veterans' Home is located at Yountville, and the Napa State Hospital is located one-half mile southeast of the City of Napa. Table 4 shows the population of these unincorporated areas in 1950 by townships and the changes which occurred in the population of each township between 1940 and 1950. Figure 4 shows the location of the townships in Napa County. Table 5 presents a summary of population distribution in Napa County in 1950 by cities, unincorporated urban areas and rural areas.

TABLE 4

NAPA COUNTY
POPULATION CHANGES IN THE UNINCORPORATED PORTIONS OF TOWNSHIPS
1940 to 1950

	Population		*Percentage change*
Township	*1940*	*1950*	*1940 to 1950*
Napa	13,865	22,835	64.7
St. Helena	3,277	5,398	64.7
Calistoga	739	1,076	45.6
Total	17,881	29,309	63.9

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951.

FIGURE 3

NAPA COUNTY

THE CITY OF NAPA AND URBAN FRINGE AREAS

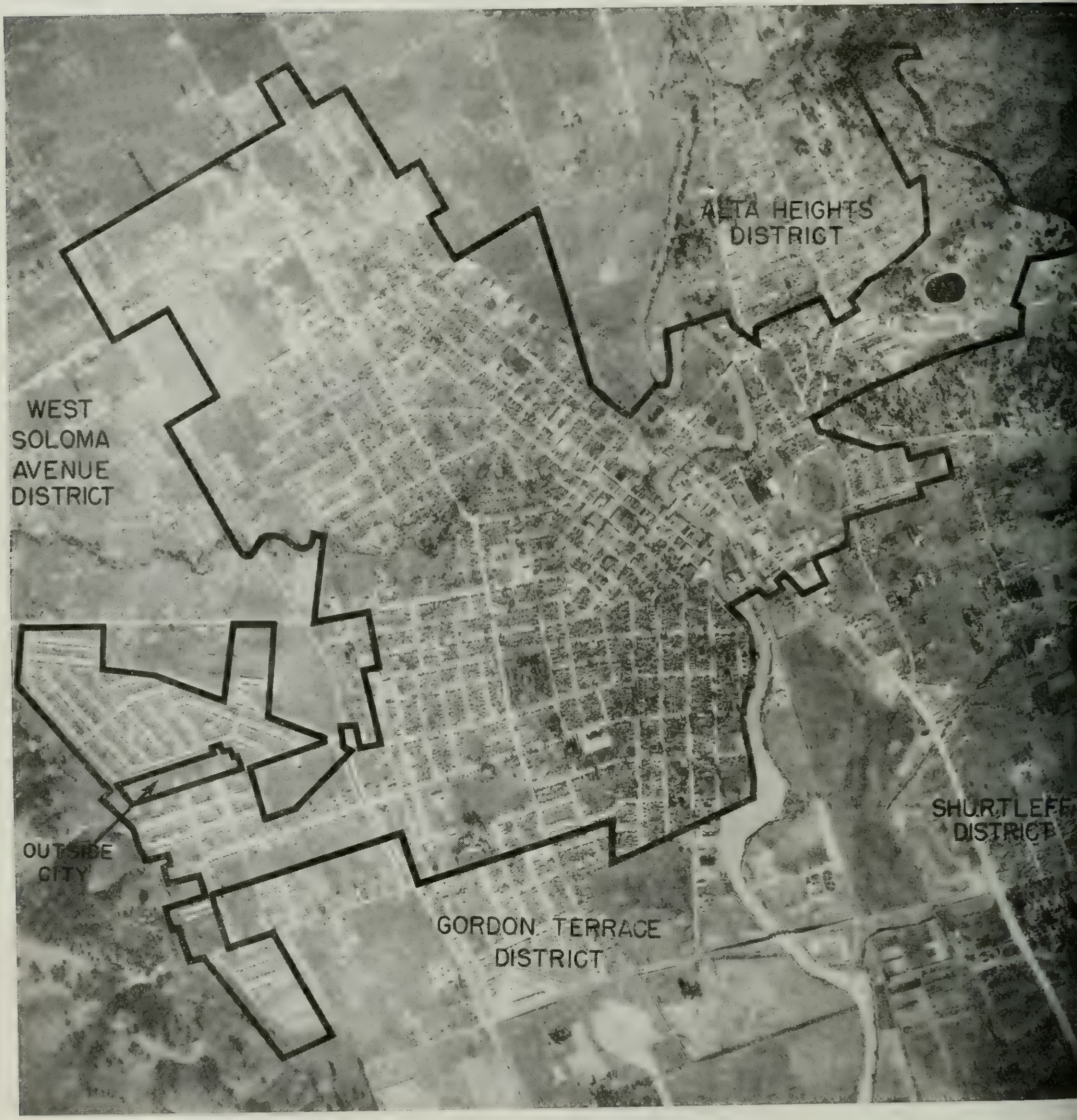


FIGURE 4

NAPA COUNTY JUDICIAL TOWNSHIPS

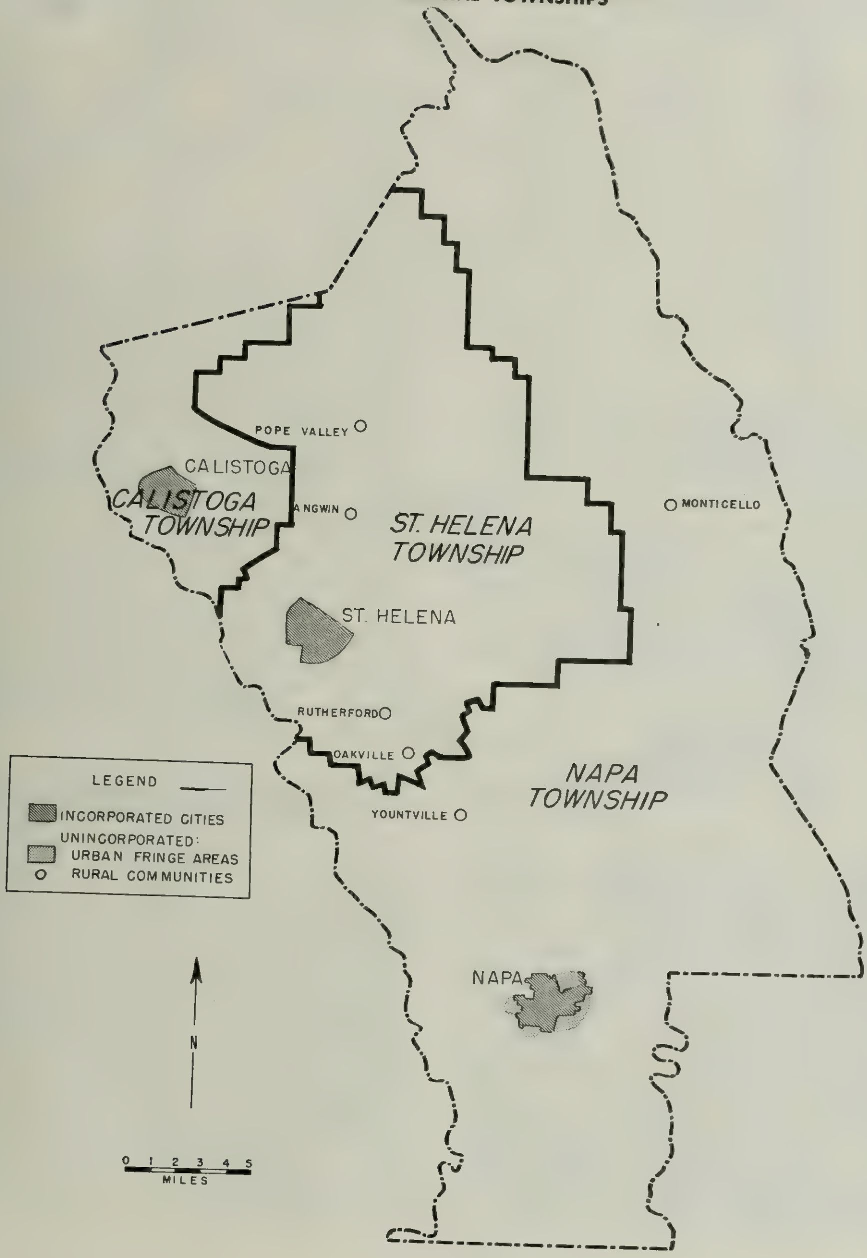


TABLE 5

NAPA COUNTY
POPULATION BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS

Areas	1950 *Population*	*Percent of total county population*
Cities	17,294	37.1
Napa	13,579	29.2
St. Helena	2,297	4.9
Calistoga	1,418	3.0
Unincorporated urban areas		
Napa fringe	7,000 [a]	15.0
All other unincorporated areas	22,309	47.9
Yountville	[b]	---
Oakville	[b]	---
Rutherford	[b]	---
Pope Valley	[b]	---
Angwin	[b]	---
Monticello	[b]	---
Rural areas	[b]	---
Total	46,603	100.0

NOTES:
[a] Estimated on the basis of approximate dwelling units and school attendance figures.
[b] Population data not available for these areas.

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

Assessed Valuations

The assessed valuation of Napa County in 1951 amounted to $46,752,145. Of this total $19,752,360, or 42.2 percent, represented assessed valuations inside cities, while $26,999,785, or 57.8 percent, represented valuations in urban and rural unincorporated areas. Table 6, below, shows these assessed valuations in Napa County in 1951, by cities, by unincorporated urban areas and by unincorporated rural communities and rural areas.

TABLE 6

NAPA COUNTY
ASSESSED VALUATIONS BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS

Areas	1951-52 *Assessed valuation*	*Percent of total county assessed valuation*
Cities	$19,752,360	42.2
Napa	14,390,945	30.8
St. Helena	3,278,600	7.0
Calistoga	2,082,815	4.4
Unincorporated urban areas		
Napa fringe	4,493,000 [a]	9.6
All other unincorporated areas	22,506,785	48.2
Yountville	[b]	---
Oakville	[b]	---
Rutherford	[b]	---
Pope Valley	[b]	---
Angwin	[b]	---
Monticello	[b]	---
Rural areas	[b]	---
Total	$46,752,145	100.0

NOTES:
[a] Estimated by calculating the approximate amount of the assessed valuations of the Napa Elementary School District and the Shurtleff Elementary School District which apply to the fringe area.
[b] Data not available for these areas.

SOURCE: "County of Napa, Assessed Valuations, 1951-52."

During the 10 years from 1940 to 1950, the greatest increase in assessed valuations occurred within cities. The growth in the local tax base both for the incorporated and unincorporated areas of the county is shown below.

Assessed Valuations

Year	*Total*	*Incorporated areas*	*Unincorporated areas*
1940-41	$24,026,422	$8,916,072	$15,110,350
1951-52	46,752,145	19,752,360	26,999,785

Percent of Total

	Incorporated areas	*Unincorporated areas*
1940-41	37.1	62.9
1951-52	42.2	57.8

Total assessed valuations of the county rose 94.6 percent during this decade; valuations inside cities rose 121.5 percent; and assessed valuations in the unincorporated areas increased 78.7 percent. The percentage of the local tax base inside cities thus grew from 37.1 percent in fiscal 1941 to 42.2 percent in fiscal 1952, while the percentage in the unincorporated areas declined from 62.9 percent to 57.8 percent over the same period.

Table 7 compares the percentage of population residing within incorporated cities and unincorporated areas with the percentage of the county tax base in cities and unincorporated areas. The cities of the county comprised 37.1 percent of the population of the county and accounted for 42.2 percent of the county property tax base. The one clearly distinguishable unincorporated urban area, the Napa fringe, contained 15 percent of the county population but only 9.6 percent of the assessed valuations of the county. Other unincorporated areas combined contained 47.9 percent of county population and 48.2 percent of county assessed valuations. In per capita terms, the total assessed valuation of the county amounted to $1,003 in 1951-52. Per capita assessed valuations inside cities were $1,142 as compared with only $921 in the unincorporated areas.

TABLE 7

NAPA COUNTY
PERCENTAGE DISTRIBUTION OF POPULATION IN 1950 AND ASSESSED VALUATIONS IN 1951-52, BY AREAS

Areas	*Percent of total population* *1950*	*Percent of total assessed valuation* *1951-52*
Cities	37.1	42.2
Napa	29.2	30.8
St. Helena	4.9	7.0
Calistoga	3.0	4.4
Unincorporated urban areas		
Napa fringe [a]	15.0	9.6
All other unincorporated areas	47.9	48.2
Yountville	[b]	--
Oakville	[b]	--
Rutherford	[b]	--
Pope Valley	[b]	--
Angwin	[b]	--
Monticello	[b]	--
Rural areas	[b]	--
Total	100.0	100.0

NOTES:
[a] Data available for total Napa fringe area only.
[b] Data not available for these areas.

SOURCE: Tables 5 and 6.

The boundaries of the Napa Elementary School District are approximately those of the urban fringe area. They exclude one urban section or approximately one-half of the Shurtleff Elementary School District. Thus, the assessed valuation of the urban fringe area around the City of Napa may be estimated as follows:

Area	*1951-52* *Assessed valuation*
Napa Elementary School District	$18,175,095
Shurtleff Elementary School District	708,685
Total	$18,883,780
City of Napa	14,390,945
Urban fringe	$4,492,835

This obviously is a crude measure of the assessed valuation of the urban unincorporated region around the City of Napa, but it is a minimum figure, since several urban areas extend beyond the Napa Elementary School District.

The distribution of county assessed valuations among the 20 elementary school districts of the county provides a more detailed picture of how the tax base is divided between areas outside and inside cities:

TABLE 8
NAPA COUNTY
ASSESSED VALUATIONS OF ELEMENTARY SCHOOL DISTRICTS
1951-52

School district [a]	*Assessed valuation*	*Percent of county total*
American Canyon	$1,579,540	3.38
Atlas Peak	170,380	0.36
Browns Valley	948,180	2.03
Calistoga [b]	3,830,705	8.18
Capelle	163,210	0.35
Carneros-Los Amigos	1,483,630	3.17
Enterprise	112,160	0.24
Gordon Valley	368,660	0.79
Howell Mountain	643,370	1.38
Monticello	1,653,960	3.54
Mt. Veeder	204,010	0.44
Mt. George Union	2,407,450	5.15
Napa [c]	18,175,095	38.87
Pope Valley Union	672,305	1.44
St. Helena [d]	8,531,900	18.25
Salvador Union	2,395,550	5.12
Shurtleff	1,417,370	3.03
Soda Canyon	558,960	1.20
Wooden Valley	188,980	0.40
Yountville-Yount	1,246,730	2.67
Total	$46,752,145	100.00

NOTES:

[a] Unless otherwise specified, the district is entirely unincorporated.

[b] District includes City of Calistoga—assessed valuation, $2,082,815.

[c] District includes City of Napa—assessed valuation, $14,390,945.

[d] District includes City of St. Helena—assessed valuation, $3,278,600.

SOURCE: County Assessment Rolls, Napa County Auditor.

TABLE 9
NAPA COUNTY
ASSESSED VALUATIONS AND EXPENDITURES OF SPECIAL DISTRICTS
1951-52

			Assessed valuation				
Type of district	*Number of districts*	*Governed by*	*Total amount*	*As a percent of total county valuation*	*Amount in unincorporated areas* [a]	*Valuation in unincorporated area as a percent of total district valuation*	*Budgeted operational expenditures 1951-52* [b]
Recreation	1	Local board	$30,699,055	65.6	$16,308,110	53.1	$1,500
Sanitation	1	Local board	15,082,540	32.3	691,595	4.6	89,330
Water	3	Local board	756,780	1.6	756,780	100.0	700
Cemetery	1	Local board	1,653,960	3.5	1,653,960	100.0	1,600
Mosquito abatement	1	Local board	46,752,145	100.0	26,999,785	57.8	12,016

NOTES:

[a] The figure shown for the assessed valuation of unincorporated urban areas is for Napa fringe only.

[b] Bond interest and principal requirements are not included.

SOURCE: "County of Napa, 1951-1952 Assessed Valuations."

SPECIAL DISTRICTS IN NAPA COUNTY

In addition to the county as a unit of local government, Napa County contains 33 local political subdivisions. Besides three cities there are 20 elementary school districts; three high school districts; and seven special districts. The latter are of concern here, and some indication of their importance in the structure of local government in Napa County is shown in Table 9 below. Of the single-purpose special districts shown, the mosquito abatement district is the only one with limits coterminous with the boundaries of the county. Small unincorporated areas are served by the three water districts. The Veterans' Memorial (Recreation) District includes a large part of the county while the Monticello Cemetery District serves the same area as the Monticello Elementary School District. None of these special districts provides services which parallel those of the county.

The Napa Sanitation District extends beyond the corporate limits of the City of Napa, but it does not include all of the area of the Napa Elementary School District. Various intergovernmental services are provided to this sanitation district both by the City of Napa and by Napa County for which no charges are made. City services include office space and facilities for the District Manager; stenographic services, including the preparation of minutes, and the typing of correspondence and monthly warrants. The City of Napa plans to begin charging for these services in the near future. Services by the county include general overhead functions such as budgeting, auditing and bookkeeping. Like all county overhead, these are supported from general funds, and therefore some portion represents a subsidy paid by all county taxpayers who reside outside of these districts.

CITY SERVICES EXTENDED TO OUTSIDE AREAS

The amounts spent by the cities of Napa County for various governmental services of concern in this report are shown in Table 10. The table shows these expenditures both in total and per capita amounts.

TABLE 10
NAPA COUNTY
CITY EXPENDITURES FOR SELECTED FUNCTIONS[a]
1950-51

Function	*Calistoga*	*Napa*	*St. Helena*
General Government:			
Amount	$6,052	$194,856	$7,860
Per capita	4.27	14.35	3.42
Planning:			
Amount	---	2,189	---
Per capita	---	.16	---
Police Protection:			
Amount	11,754	112,503	14,013
Per capita	8.29	8.29	6.10
Fire Protection:			
Amount	4,344	104,652	4,440
Per capita	3.06	7.71	1.93
Dog Pound:			
Amount	278	---	34
Per capita	.20	---	.01
Health:			
Amount	720	5,087	990
Per capita	.51	.37	.43
Streets:			
Amount	10,580	173,816	19,728
Per capita	7.46	12.80	8.59

NOTE:
[a] Includes operation, maintenance, and capital outlay.

SOURCE: Financial statements of various cities.

Table 11 shows the services extended outside corporate limits by the cities of Napa County. It also indicates whether or not charges are made for these service extensions to unincorporated area residents. Each of these services are discussed in the following sections.

TABLE 11
NAPA COUNTY
CITY SERVICES PROVIDED TO NONCITY RESIDENTS AND TO OTHER GOVERNMENTAL UNITS
1951

Service	*Napa*	*St. Helena*	*Calistoga*
General government			
Charge		x	
No charge	x		
Fire protection			
Charge		x	
No charge		x	
Health and sanitation			
Charge		x	
No charge			
Utilities			
Charge	x	x	x
No charge			
Recreation and parks			
Charge	x		
No charge	x	x	x
Library			
Charge			
No charge		x	x

It is at once apparent that city library and park services are provided for the most part to other than city residents without charge. The City of Napa charges for recreational privileges at the Conn Dam Recreational Area, but it also provides a large recreational service free through its joint city-school district program. These services are described in more detail in following sections.

City Services Involving Charges

General Government. Napa County pays for certain general government services it receives from cities. St. Helena, for example, provided office space for the county health and welfare department, at an annual rental of $300.

Protection to Persons and Property. For some time Napa County has had a variety of financial arrangements with all three cities pursuant to which they have provided fire protection outside the corporate city limits. This program is examined in a later section dealing with county functions. Aside from arrangements with the county, St. Helena furnishes fire protection to three wineries, under private contracts. In return for a payment of $150 per year, each winery receives protection equivalent to that which would be given were it located within the city. Direct alarm systems link the wineries to the city fire house.

Health and Sanitation. The dump of the City of St. Helena is available for the use of residents outside the city. For the provision of this service, the county pays the City of St. Helena $600 per year.

Utilities. The City of Napa has a municipal water system representing an investment of 3.6 million dollars, capable of handling several times its present load. The main supply pipeline runs from Conn Dam, some 15 miles north of Napa, to Shipyard Acres, two miles south of Napa. Water is supplied to approximately 1,162 outside connections located in the Napa fringe area, the Shipyard Acres Housing Project, and along the pipeline. Current water rates are as follows:

Number of gallons	*Inside Napa*	*Outside Napa*
First 2,500	$0.60	$0.80
Next 7,500	0.35	0.50
Over 10,000	0.30	0.35

St. Helena and Calistoga also have city-owned water systems and provide service to outside customers, as follows:

	St. Helena	*Calistoga*
Number of outside connections	125	31
Location	City environs, plus Rutherford	City environs
Rates:		
Inside city	First 625 cu. ft. $1.25 Next 100 cu. ft. .20 Next 4,275 cu. ft. per 100 .25 Over 5,000 cu. ft. per 100 .20	First 600 cu. ft. $1.50 Additional at graduated rates
Outside city	First 625 cu. ft. $1.75 Each additional 100 cu. ft. .25 Rates in Rutherford: First 300 cu. ft. $2.00 Each additional 100 cu. ft. .25	First 600 cu. ft. $2.00 Additional at the same graduated rates as inside city.

Recreation and Parks. The only city recreational facility involving charges is the Conn Dam Recreational Area, operated by the City of Napa. Located about 15 miles north of Napa, the attractions of this area draw residents from all parts of the county. Recreation expenditures were $8,090 in 1951, but these were more than offset by the following revenues:

6,924 automobile entrance permits at $0.25	$1,731
4,838 fishing permits at $1.50	7,257
Boat rentals	2,960
Total	$11,948

The surplus of $3,858 was credited to the water department. For fiscal 1952, budgeted expenditures and receipts were $4,500 and $9,000 respectively.

City Services Provided Without Charge

General Government. It has already been mentioned, in the section dealing with special districts, that the Napa Sanitation District receives a considerable amount of free stenographic and office space service from the City of Napa. The city plans to charge the district for these services in the future.

Recreation and Parks. Recreation and park facilities owned and wholly or partially supported by the cities are used in varying degrees by the residents of the unincorporated areas. The county does not administer any recreational programs nor does it financially assist the recreational programs of other agencies. Numerous attempts have been made to enlist such support from the county, as well as from the Twenty-fifth Agricultural District, but without success.

A diversified recreation program which makes use of city and school district recreation facilities is administered by the City of Napa Recreation Commission. A full-time recreation director and a staff adjusted to seasonal loads is employed by the commission, and the city provides bookkeeping service for the commission without charge. Softball, basketball, swimming, folk-dancing and hobbycrafts form the bulk of the program which Napa officials claim is acknowledged as one of the best in the State. Anyone, regardless of place of residence, may participate. The city has recently been advised that there is a higher per capita participation in recreation in Napa than in any other city in the Nation. Nine large playing field areas within the city, well-turfed and lighted, have been developed as part of the recreation program.

In 1951 there were 9,900 active participants in the Napa program, 2,475 of whom came from outside the city limits. Total expenditures supporting the program amounted to $14,250 in 1951. Of this amount, the Napa Elementary School District provided $2,000; the Napa High School District provided $6,000; and the City of Napa provided $6,250. As provided by its charter, the city's contribution was obtained from a tax rate of 4 cents per $100 of assessed valuation included in the total tax rate of $1.50. No charge was made for water used in the recreation program. City revenue from recreation activities totaled $4,783 in 1951 and was derived from the following services: swimming pool, $1,680; baseball fields, $2,740; and miscellaneous, $360. For fiscal 1952, a total budget of $20,000 was set up for the program; the city share was budgeted at $6,880.

In 1948, the city provided $5,000 to assist in the financing of a community swimming pool built on the high school grounds. The general public contributed a significant share of the pool's construction costs through voluntary subscriptions. The pool is available to everyone throughout the year (an admission charge is made to all except school enrollees), under a recreation program schedule. Pool maintenance is paid by the school district but all admission fees collected are turned over to the city. In 1951 the city also provided lighting systems for ballfields, at a cost of $7,268. Baseball receipts are also retained by the city.

Capital outlays, such as those for the pool and for lighting, are carried out only with the specific approval of the city council. They have been met from sales tax receipts. As a general policy the city uses sales tax revenues only for long-term capital projects. For several years, the amount of sales tax receipts which could be used for recreational projects has been fixed at 6 percent. No such amount, however, has been provided in the budget for 1951-52.

Library. The Cities of St. Helena and Calistoga indicated that considerable use of their libraries is made by persons living outside these cities, in contrast to the City of Napa, where only city residents receive the service of their city library. No charges are made by either St. Helena or Calistoga for use of the library by persons residing outside the city. The tabulation below indicates the extent of the use of the library facilities of St. Helena and Calistoga by residents of areas outside these cities:

	St. Helena	*Calistoga*
Budgeted expenditures, 1951-52	$2,855	$1,311
Total annual circulation, 1951	11,098	13,000
Total borrowers, 1951	805	300
Borrowers residing outside the city	206 26%	75 25%

COUNTY SERVICES

County Expenditures and Revenues

The distribution of the expenditures and revenues of Napa County is shown in Figure 5. In 1951-52, the total final county budget amounted to $6,113,686. Of this amount, $3,390,501, or 56 percent, was budgeted to meet county expenditures; while $2,723,185, or 44 percent, was budgeted to meet school and special district expenditures for the fiscal year. These figures, with estimated revenues from property taxes, follow.

Budget	*Total expenditures*	*Percent of total*	*Amount raised by property taxes*	*Percent of total*	*Percentage of property taxes to total expenditures*
County	$3,390,501	56	$1,069,087	51	32
School and special districts	2,723,185	44	1,047,352	49	39
Total	$6,113,686	100	$2,116,439	100	35

In per capita terms, Napa County expenditures reached $72.75 which, although higher than counties like Alameda ($64.14) and Los Angeles ($69.68), was less than other counties of more similar size. For example, per capita expenditures in Kings County amounted to $134.83; in Mendocino, $93.69; and in two of the other counties studied in this report, Sacramento and Kern, to $73.12 and $104.98, respectively.

Napa County budgeted expenditures for 1951-52 are shown by general function in Table 12. The first column lists the amounts actually budgeted by budget categories, while the third column shows these expenditures after an arbitrary reclassification of a number of budget items, undertaken to make these general functions comparable as between the various counties studied in this report. Charities and corrections, roads and bridges, and general government services were the three largest budget items, accounting for 48.8 percent, 20.2 percent, and 12.4 percent, respectively, of total county expenditures.

TABLE 12
NAPA COUNTY
COUNTY EXPENDITURES BY GENERAL FUNCTION
1951-52

General function	*Expenditures* *Budget amounts*	*Percent of total*	*Adjusted budget amounts*[a]	*Percent of total*
General government	$377,862	11.1	$422,592	12.4
Protection to persons and property	275,908	8.1	275,908	8.1
Health and sanitation	114,230	3.4	114,230	3.4
Roads and bridges	681,220	20.2	681,220	20.2
Charities and corrections	1,655,429	48.8	1,655,429	48.8
Education	56,607	1.7	56,607	1.7
Reserve funds	184,515	5.4	184,515	5.4
Miscellaneous	44,730	1.3	---	--
Total	$3,390,501	100.0	$3,390,501	100.0

NOTE: [a] Adjusted to a standard functional classification adopted in this study for purposes of making itnercounty comparisons.

SOURCE: "Final Budget for the Fiscal Year, July 1, 1951, to June 30, 1952," Napa County.

The revenues and funds from which these expenditures were to be met in fiscal 1952 are shown in Table 13 below. The major source of county income derived from federal and state subventions and grants. Together they provided 53.9 percent of the county income. Property taxes ranked second, producing 32.1 percent of county income in 1951-52, while balances (10.2 percent) and administrative receipts (3.8 percent) provided the remaining moneys essential to the financing of the budget.

Area	*1950 population as a percentage of county total*	*1951-52 assessed valuations as a percentage of county total*	*Estimated share of current county property taxes*
Incorporated	37.0	42.2	$427,240
Napa	29.1	30.8	311,830
St. Helena	4.9	7.0	70,870
Calistoga	3.0	4.4	44,540
Unincorporated	63.0	57.8	585,180
Urban	15.0	9.6	97,190
Rural	48.0	48.2	487,990
Total county	100.0	100.0	$1,012,420

TABLE 13
NAPA COUNTY
COUNTY REVENUES AND BALANCES
1951-52

Source	*Amount*	*Percent of total*
Property taxes	$1,087,287	32.1
Basic county-wide ad valorem tax	1,012,423	29.9
Library tax, outside cities	19,214	0.6
Road tax, outside cities	37,450	1.1
Levies of previous years	17,950	0.5
Mandatory special taxes	250	[a]
Subventions and grants	1,828,718	53.9
State	1,096,802	32.3
Federal	731,916	21.6
Administrative receipts	129,860	3.8
Licenses and permits	3,360	0.1
Fines and penalties	21,500	0.6
Privileges	7,700	0.2
Fees and commissions	37,010	1.2
Rent and interest	7,150	0.2
Special services	4,100	0.1
Intergovernmental services	22,190	0.6
Miscellaneous	26,850	0.8
Available balances	344,636	10.2
Total	$3,390,501	100.0

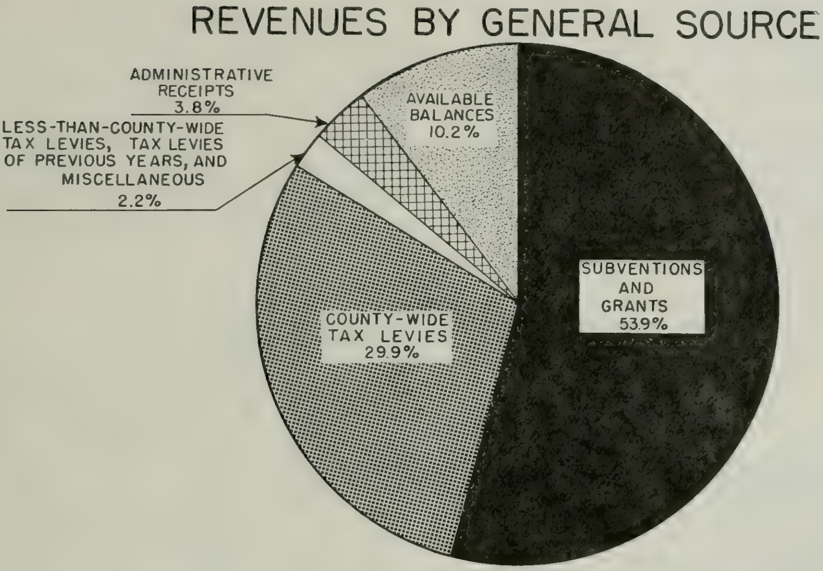
NOTE: [a] Less than one-tenth of 1 percent.

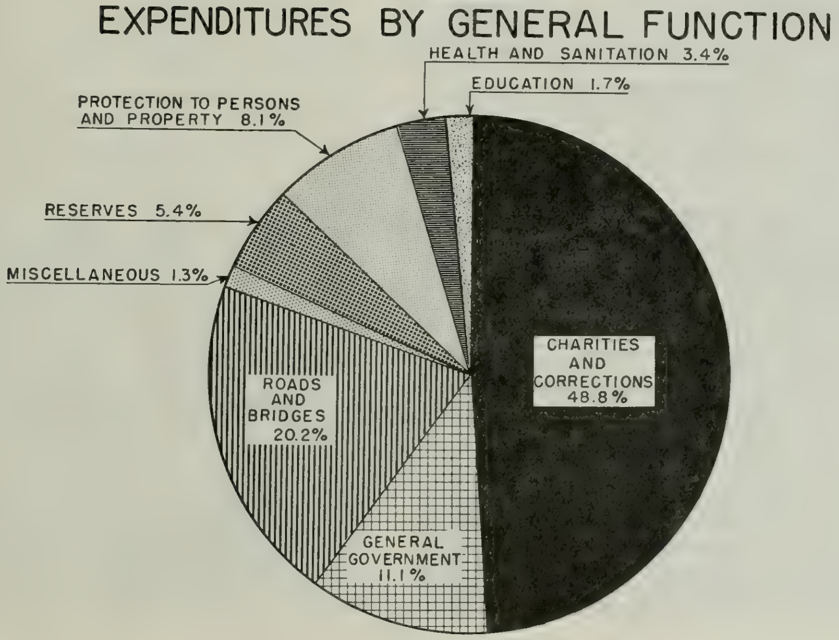
SOURCE: "Final Budget for the Fiscal Year July 1, 1951, to June 30, 1952," Napa County.

It is interesting to note the share of the county ad valorem tax paid by property owners in various areas, as indicated by the proportion of the county tax base in these areas. Current property tax collections were estimated at $1,012,423, or 29.9 percent of the total funds available for 1951-52. If this total is distributed to certain areas on the basis of assessed valuation in those areas, and also compared with the distribution of the county's population, the following results appear: From these figures it appears that city residents, who constituted 37 percent of the county's population, paid 42.2 percent of the total $1,012,423, or $427,240. Residents of the Napa fringe area, 15 percent of the population, paid 9.6 percent of ad valorem tax collections, while rural taxpayers, constituting 48 percent of the population, paid an estimated 48.2 percent.

FIGURE 5

NAPA COUNTY
DISTRIBUTION OF REVENUES AND EXPENDITURES
1951-52





Of the income expected from subventions and grants, 40 percent derived from the Federal Government, while 60 percent derived from state sources. For fiscal 1952, the following amounts of state subventions were included in the budget:

Subvention	*Amount*
Motor vehicle fund and motor vehicle fuel tax fund	$251,280
Motor vehicle license fee fund (In-lieu tax)	116,340
Alcoholic beverage license fees	17,200

If the 1950 population distribution is accepted as a basis for estimating the source of the state subventions from the motor vehicle fuels tax and from the in-lieu tax, then residents of cities (37 percent of the population) provided about $136,000 of this income and the balance, or about $231,000, came from the residents of unincorporated areas. With respect to the subvention of alcoholic beverage license fees, the entire amount of $17,200 may be considered as having been derived from the residents of unincorporated areas.

Table 14 shows the estimated amount of certain county revenue items which can be traced as being paid by residents of cities and residents of unincorporated areas. Approximately $1,400,000 of county revenues, or 42.8 percent of the total of revenues and balances available for financing the budget, are considered as traceable by taxpayer location. Of this amount, 38.7 percent is designated as paid by the residents of cities and 61.3 percent is designated as paid by noncity residents. Revenues traceable to city residents amounted to only $563,200; while those traceable to residents of unincorporated areas amounted to $890,707.

TABLE 14
NAPA COUNTY
TRACEABLE COUNTY REVENUE ITEMS, FUND TO WHICH ALLOCATED, AND AMOUNTS ESTIMATED AS PAID BY CITY AND NONCITY RESIDENTS
1951-52

Traceable revenue items and funds to which allocated	*Traceable current revenues*	*Traceable revenues as a percentage of:*			*Traceable revenues estimated as paid by city residents*		*Traceable revenues estimated as paid by noncity residents*	
		Total revenues and balances	*Revenue item*	*Current fund requirement*	*Amount*[a]	*Percent of fund requirement*	*Amount*[a]	*Percent of fund requirement*
County-wide property taxes								
General fund	$537,510	15.9	53.1	58.8	$226,800	24.8	$310,710	34.0
Infirmary fund	34,365	1.0	3.4	73.6	14,500	31.1	19,865	42.6
Promotion fund	7,900	0.2	0.8	55.2	3,300	23.1	4.600	32.1
Social welfare fund	286,033	8.4	28.2	18.3	120,700	7.7	165,333	10.6
Unappropriated reserve fund	44,100	1.3	4.4	71.1	18,600	30.0	25,500	41.1
Capital improvement fund	102,515	3.0	10.1	100.0	43,300	42.2	59,215	57.8
Total—County-wide property taxes	$1,012,423	29.8	100.0	37.2	$427,200	15.7	$585,223	21.5
Less-than-county-wide property taxes								
Road district tax—to roads fund	$37,450	1.1	100.0	5.9	--	--	$37,450	5.9
Library tax—to county library fund	19,214	0.6	100.0	63.3	--	--	19,214	63.3
Total—Less-than-county-wide property taxes	$56,664	1.7					$56,664	
Subventions								
Special road improvement fund (motor vehicle fuel tax)	$251,280	7.4	100.0	39.4	$93,000	14.6	$158,280	24.8
Special road improvement fund (in-lieu tax)	94,590	2.8	81.3	14.8	35,000	5.5	59,590	9.3
General fund (in-lieu tax)	21,750	0.6	18.7	2.4	8,000	0.9	13,750	1.5
General fund (alcoholic beverage control licenses)	17,200	0.6	100.0	1.9	--	--	17,200	1.9
Total—Subventions	$384,820	11.3		24.8	$136,000	8.8	$248,820	16.0
Total traceable revenues	$1,453,907	42.8	100.0	42.8	$563,200	16.8	$890,707	26.2
Percent of traceable revenues	100.0				38.7		61.3	

NOTE: [a] Allocations credited to city and nonctiy residents from ad valorem taxes were computed on the basis that 42.2 percent of the 1951-52 assessed valuations was inside cities; from subventions, on the basis that 37 percent of the population in 1950 was inside incorporated cities; the Alcoholic Beverage Control subvention is entirely credited to unincorporated areas. Totals may not add due to rounding.

SOURCE: "Final Budget for the Fiscal Year July 1, 1951, to June 30, 1952," Napa County.

Table 15 shows the amounts estimated as contributed to the general and the special road improvement funds of the county by city and noncity residents. Of county general fund revenues, 63.1 cents of each fund dollar was traceable. City residents are credited with contributing almost 25.7 cents of this amount, while noncity residents are credited with 37.4 cents. Approximately 54 cents of each special road improvement fund dollar was estimated as being traceable. Of this amount, city residents are credited with 20.1 cents, while noncity residents are credited with 34.2 cents per fund dollar.

TABLE 15

NAPA COUNTY

TOTAL REQUIREMENTS AND ESTIMATED TRACEABLE AMOUNTS OF SELECTED FUNDS

1951-52

Fund	*Total current fund requirements*	*Estimated traceable amounts*			*Estimated traceable amounts in cents per fund dollar*		
		Total	*Credited to city residents*	*Credited to noncity residents*	*Total*	*Credited to city residents*	*Credited to noncity residents*
General fund	$914,177	$576,400	$234,800	$341,600	63.1	25.7	37.4
Special road improvement fund	637,020	345,870	128,000	217,870	53.3	20.1	34.2

SOURCE: "Final Budget for the Fiscal Year July 1, 1951, to June 30, 1952," Napa County; and data in Table 13.

In relation to this attempt to ''trace'' county revenues to residents of incorporated and unincorporated areas, Figure 6 sheds further light on the distribution of Napa County's population as between city and noncity residents. Figure 6 shows the boundaries of the supervisorial districts in the county. District No. 3 includes the Cities of Calistoga and St. Helena, and these two cities account for about one-third of its population. The City of Napa, on the other hand, is divided between District No. 1 and District No. 5. About 70 percent of the population of District No. 1 resides in the City of Napa while approximately 37 percent of the population of District No. 5 lives inside the city.

Services Provided by Napa County

The following sections present an analysis of various county services for the purpose of ascertaining whether different amounts or levels of these services are provided in different county areas. The sections are listed by general budget classification, but only those services involved with the above questions are examined in detail.

General Goverment Services. The 25 items listed in the 1951-52 budget under the heading of General Government required a total expenditure of $377,862. Direct fees and intergovernmental charges amounting to an estimated $20,920 were, however, expected to reduce this to a net figure of $356,942, or approximately 11 percent of the total of net expenditures for the county.[1] County operations and services such as general administration, legislation, justice, budgeting and accounting, and general overhead constituted the bulk of these items. With the exception of the law library, all of these items were met from general fund revenues. Moreover, nearly all of them were county-wide in nature, such as provision of justice through the county court system, or they were part of the overhead necessary to provide such county-wide services as the county welfare program. There are, however, many qualifications to this classification. For example, the board of supervisors does not legislate on, or administer, the municipal affairs of the cities in Napa County. It is not possible, however, to say how much expenditure should be allocated to those board activities which relate to matters of importance to the whole county and how much to services which relate to matters concerning only the unincorporated areas. Another example exists in the case of the so-called ''overhead'' items which are involved in county operations other than those available to all residents of the county. Thus, the sheriff's office occupies space in the Hall of Records, the maintenance of which is included in expenditures for general government. That share of sheriff's service found to be less than county-wide should reflect an appropriate charge for general overhead. This has not been done here, because even if the sheriff's office were located elsewhere, the expense of the Hall of Records would in all probability be the same, and any allocation method which might be used could be challenged as arbitrary and inaccurate. This omission of such overhead charges does not, in any case, involve significantly large sums.

One may also question whether the county planning commission provides county-wide services, Expenditures for planning were budgeted at $9,750, but at the present time the county has no planning staff. A half-time planning position was maintained in the past, and some planning research in land use was carried out. An airport master plan and subdivision ordinance have also been prepared. All the unincorporated area has been given zoning classifications. While the predominent classification is of course agricultural, a 500-foot strip on each side of the county primary roads is zoned for other uses. No building code applies anywhere in the unincorporated area, but discussions to introduce building controls in limited areas are under way. Reflected in the budgeted amount for planning is the county's share of the secretarial costs of the joint city-county planning commission. These amount to about $4,500 per year, of which the county pays 60 percent and the City of Napa 40 percent. The joint commission is concerned with developing master plans for the entire county, including the cities. Aside from the county's contribution to the joint commission, which is clearly a county-wide function, it might be estimated that three-fourths of the planning commission's work is concerned only with the unincorporated areas. This involves about $5,300, and since only the general fund is concerned, the direct city share of this sum may be estimated at approximately $1,360.

Napa County also provides property assessment service to the Cities of Calistoga and St. Helena. Each city pays $50 per year for this service, although the county reported that the cost of providing the service approximates $200 per year. No other general government services are performed for the cities of the county.

Protection to Persons and Property. Eight percent of the 1951-52 budget is allocated to county services relating to the protection of persons and property. Budgeted expenditures amounted to $275,908, but if

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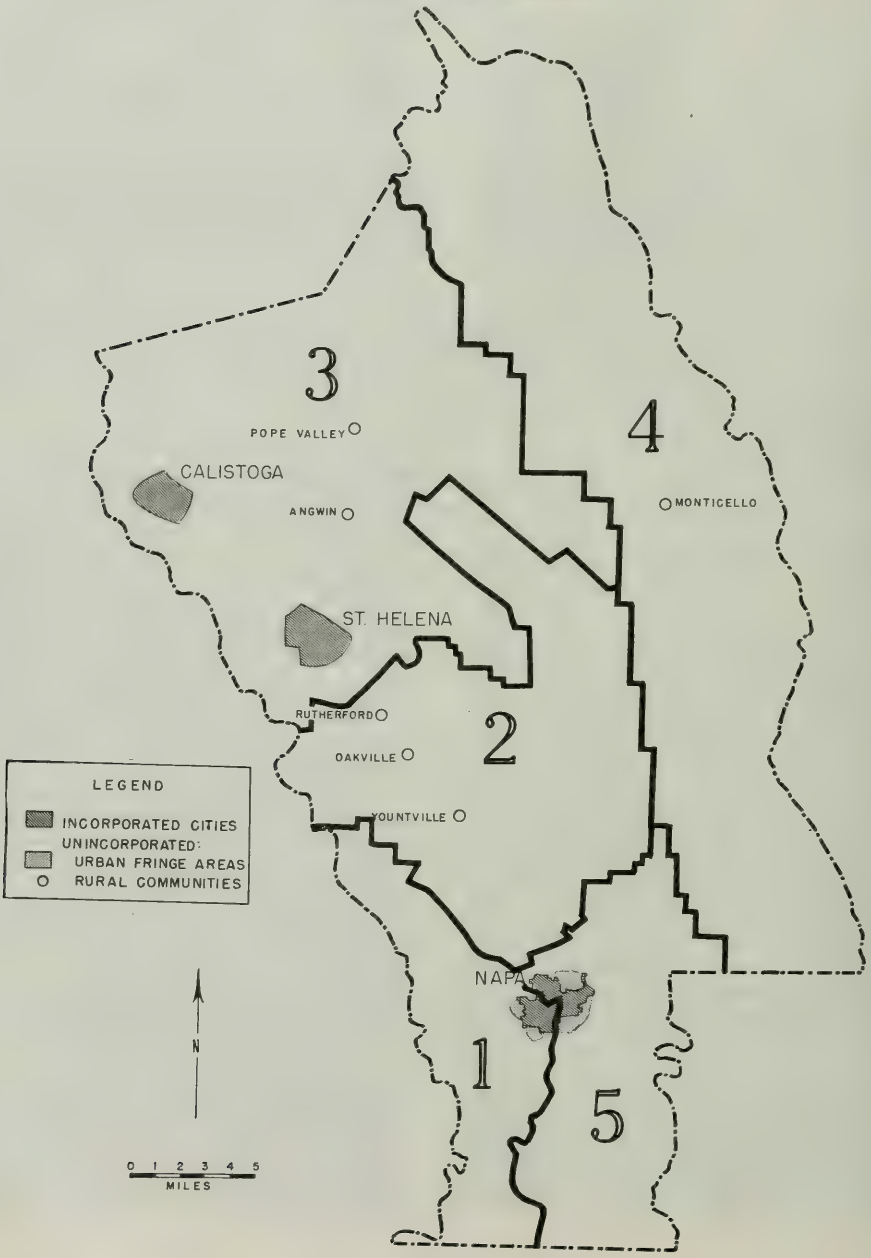
[1] See Appendix A, Table 1, for a detailed list of general government services.

FIGURE 6

NAPA COUNTY SUPERVISORIAL DISTRICTS



related fees and charges are considered against this amount, the net figure of concern to this study becomes $249,068. The bulk of these related revenues consisted of fees for recorder's services. Services in this classification include law enforcement, fire protection, animal pound, water and soil conservation, recording, inspection of weights and measures, and agricultural programs. Only the first three of these services involves some aspects which may be considered as less than county-wide in nature.[2]

Law Enforcement. County expenditures associated with law enforcement, exclusive of general overhead, are shown below for Fiscal 1952.

	Budgeted expenditures	*Net expenditures*
Sheriff's office	$91,570	$89,870
Constables	6,020	6,020
County jail	7,350	6,510
Total	$104,940	$102,400

Budgeted expenditures were reduced by an annual payment of $840 by the City of Napa to cover county expense of feeding city prisoners housed in the county jail, and $1,700 in fees charged by the sheriff for serving of civil writs. The services supported by the net outlays of $102,400 are of primary concern here.

In Napa County *all* city prisoners are held in the county jail and are transported by the sheriff to wherever their court appearance is required. The county makes no charges to the cities for this service, but the City of Napa, as noted above, annually pays $840 which is applied towards the salary of the night jailer ($3,900). Other than this, the cities are provided with free jail service for violators of city ordinances. About 43 percent of all man-hours served in the county jail during 1951 were for city prisoners. Thus, the load on the jail resulting from violations of city ordinances is not small, and it may be concluded that cities are saving a considerable amount as a result of these free county jail facilities which are provided to them.

Constables, although budgeted under the heading of protection to persons and property, would perhaps be more appropriately treated in the administration of justice category, under general government. They are related to an earlier, rural system of law enforcement and are supposed to perform the dual functions of carrying out civil duties connected with the township justice court and enforcing minor penal statutes involving misdemeanors. In California, constables actually perform very little police work, and this is particularly the case in Napa County. Only three constables officiate in Napa County and two of these serve on a part-time basis. One full-time constable is stationed in the City of Napa, serving Napa Township. In St. Helena and Calistoga the police chiefs serve as constables for their respective townships.

The sheriff's office is charged with enforcing state laws, county ordinances, and court orders; with serving civil writs; and with keeping the county jail. By state statute in California, the sheriff is required to serve *all* citizens within the county in preserving the peace and enforcing law and order. The sheriff of Napa County reports that he responds to citizens' calls whether they originate inside or outside cities. This is in contrast with the situation prevailing in most counties, where sheriffs do not perform police work inside cities unless officially requested to do so. The personnel in the sheriff's department totals 18, assigned to the following functions:

Administrative (sheriff, undersheriff, and chief deputy)	3
Outside investigation	7
Civil duties	2
Bailiff	1
Jail operation	3
Criminal stenographer	1
Communications	1
Total	18

In addition to the headquarters located in the Hall of Records Building in Napa, the sheriff also maintains a one-man substation in Calistoga, in space rented from the city and shared with the county welfare department. All cars used by the sheriff's office are privately owned and are operated on a mileage basis.

Six of the 18 employees in the sheriff's office are assigned to county-wide functions, four being in charge of the county jail and two serving as court bailiffs. The remaining 12 persons carry out actual law enforcement duties, including the investigation of, and responses to, calls. These, of course, are not entirely county-wide in nature. The services performed by these 12 employees involve estimated expenditures of about $60,000 in the budget of the sheriff's department for 1951-52.

The functions of investigation, communication, identification and records appear to be provided on a county-wide basis, with the cities receiving these types of services whenever they need them. The sheriff reports that investigative assistance is furnished to cities without charge whenever they request it, and that he assists in all felony cases in St. Helena and Calistoga. All city prisoners are booked, fingerprinted and photographed without charge by the sheriff's office, whether they are charged with violating a city ordinance, county ordinance or state law. However, the City of Napa is preparing to perform these functions independently. While Calistoga and St. Helena use the sheriff's radio without charge, Napa has its own radio set-up, tuned to the county frequency. Teletype service is provided for all cities, and their bulletins comprise some 30 percent of the combined county-city bulletin load. Emergency maintenance service is provided on county radio equipment by the electrician of the City of Napa.

With respect to actual law enforcement operations, although the sheriff does respond to calls made by city residents, it is reasonable to regard this service as one which is primarily rendered outside cities. The sheriff reports that his men serve eight-hour tours of duty, and are on call during the remaining 16 hours. Two deputies are on night duty. No particular routes are, or have been, regularly patrolled. Inauguration of a regular patrol route has been requested of the sheriff only by the urban community of Angwin, but this service has been denied. The stated policy of the board of supervisors is not to establish such patrol routes.

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[2] See Appendix A, Table 1, for a detailed list of county services in this category.

The major part of all sheriff's department work occurs in Napa Township, which of course derives from the fact that this township contains about 80 percent of the county's population. A tabulation of responses made to calls received by the sheriff in December, 1951 (stated to be a typical month) is shown below:

Location of call with respect to Napa city limits	*Number of responses*
Inside City of Napa	15
Inside City of Napa (these calls also responded to by Napa city police)	7
Within one mile	38
One to four miles	75
Four to 10 miles	44
Ten to 20 miles	10
Over 20 miles	4
Total	193

Roughly 8 percent of all responses were inside the City of Napa (excluding those also handled by the city police), but the bulk of the remaining responses were made in unincorporated territory. About half of the one-to-four-mile class of calls involved escapees from the Napa State Hospital, located just south of the City of Napa. The four-to-ten-mile class included some calls from the Veterans' Home at Yountville.

It is estimated that these responses to calls required about two-thirds of the time devoted to law enforcement operation per se, and that they would also involve this same proportion of the $60,000 budgeted for those operations. Thus expenditures for county law enforcement operations provided primarily outside the incorporated cities in Napa County may be estimated at $40,000 for 1951-52. Accepting the estimate in Table 14 above to the effect that city residents contribute 25.7 percent of each general fund dollar, it can thus be calculated that they contributed about $10,300 toward the law enforcement operations of the sheriff's department.

As to the level of county law enforcement, the evidence made available to the committee does not indicate that municipal-type police work is being performed in the unincorporated areas. No patrols are maintained, and in view of the limited personnel at the sheriff's disposal, there exists no unusual concentration of law enforcement staff outside cities.

If the 12 law enforcement personnel described above as primarily active in the unincorporated areas were related to the population outside cities (29,309), a ratio of 0.41 officers per 1,000 population in 1951 would be obtained. By comparison the cities have 18 persons serving a total city population in 1950 of 17,294, a ratio of 1.03 officers per 1,000 population.[3] A gross indication of the level of law enforcement service provided may also be obtained by calculating per capita expenditures for law enforcement. No attempt is made here to refine the analysis, as this would have required a study of the duties performed at each moment of time by every person involved in law enforcement work. Total budget figures for 1951-52 are used, and no allowance is made for any related revenue items, or for sheriff activities inside or for cities. Costs of constables are also omitted.

	1951-52 budgeted expenditures	*1950 population*	*Expenditures per capita*
All cities	$151,389	17,294	$8.75
Sheriff	100,120	29,309	3.42

The resulting figures show that law enforcement in the cities involves a per capita expenditure over twice that in the areas outside cities. Again the city figure includes some traffic work not performed by the sheriff.

Fire Protection. Napa County has no fire department but arranges for such services with city, state and other county agencies. County expenditures budgeted for fire protection in 1951-52 amounted to $57,015. Most of this sum was paid to other agencies, as shown by the following tabulation.

Government agency	*Amounts to be paid by Napa County in 1951-52*
State Division of Forestry	$20,565
City of St. Helena	16,950
City of Napa	7,200
Solano County: Fairfield-Suisun Fire District	500
Total	$45,215

The remaining expenditures, $11,800, included $7,300 for water, repairs and maintenance, and supplies, and $4,500 for capital outlay for hydrants and trucks. All expenditures were general fund items.

The location of equipment available for fighting fires in Napa County is shown in Table 16 below, together with other information relating to its purchase and operation.

This table shows that Napa County resorted to several methods of providing fire fighting services. These methods may be classified into arrangements with the State; arrangements with cities; arrangements with volunteer groups outside cities; and other.

Arrangements with the State: Napa County has entered into a formal agreement with the State Division of Forestry, under which the State provides certain fire fighting services in Zone 3 areas (i.e., areas for which the county, rather than the State or Federal Government, is held responsible). The contract excludes such portions of Zone 3 areas as lie inside cities. The amounts budgeted for this contract in the last three fiscal years were as follows: 1951-52, $20,565; 1950-51, $19,700; and 1949-50, $17,276. As shown in Table 16, the Division of Forestry mans two pieces of state equipment and three pieces of county equipment. Two of the latter are manned the year around, while all other state services are provided only from November 1st through April 30th. The agreement consists of two schedules, Schedule A, under which the county directly contracts to reimburse the State; and Schedule B, under which the State provides men and equipment, when available, without additional charge.

The Division of Forestry estimates that if the county had independently undertaken to duplicate all services rendered by the division in calendar 1951, the cost

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[3] The city figure would be somewhat lower if data with respect to the extent of traffic control and parking meter patrol work were available.

TABLE 16

NAPA COUNTY

FIRE EQUIPMENT AVAILABLE TO NAPA COUNTY

Location of equipment	*Purchased by*	*Manned by*	*Operating costs paid by*	*Repairs and maintenance paid by*
City of Napa Fire House No. 1	County	Napa Fire Department [a]	City of Napa	County
City of Napa Forestry Building [b]	State	Division of Forestry 11/1 to 4/30	County	County
St. Helena	County	St. Helena Volunteer Fire Department	St. Helena	St. Helena
St. Helena [b]	State	Division of Forestry 11/1 to 4/30	County	County
Calistoga	County	Calistoga Volunteer Fire Department	Calistoga	Calistoga
County Airport	County	County	County	County
Pope Valley [b]	County	Division of Forestry Year round	County	County
Chiles	County	Volunteers	Volunteers	Volunteers
Yountville [b]	County	Division of Forestry Year round	County	County
Monticello	County	Division of Forestry 11/1 to 4/30	County	County
Stewart's Dairy	County	Volunteers	Volunteers	Volunteers
St. Helena Sanitarium [c]	County	Volunteers	Volunteers	Volunteers
Pacific Union College [c]	County	Volunteers	Volunteers	Volunteers
Rutherford	Volunteers	Volunteers	Volunteers	Volunteers
Fairfield-Suisun Fire District (Solano County) [d]	Fairfield District	Fairfield District	County	County

NOTES:

[a] County pays the salary of two city firemen.

[b] Operated under contract with the State Division of Forestry; contract covers all direct costs.

[c] County contributed toward purchase.

[d] Operated under contract with Fairfield-Suisun Fire District; contract covers all direct costs.

SOURCE: Data supplied by Napa County Auditor.

would have been double the actual contract amount. Services rendered under the agreement, during calendar 1951, were as follows:

Type of fire responded to	*Inside cities*	*Outside cities Schedule A*	*Schedule B*	*Total*
Structural	---	19	8	27
Grass and brush	---	38	38	76
Vehicle	---	2	1	3
Total	---	59	47	106

No responses were made to fires inside cities, which is to be expected, in view of the contract terms. However, under this and similar agreements going back over the last five years, two runs were made inside cities, both occurring in St. Helena in 1949. The last run into Napa City occurred in 1944. Such runs are made only when an unusual emergency develops.

Since cities received no direct service under the division contract this might be construed as an inequity, inasmuch as taxpayers residing in cities paid an estimated $4,800 of the present contract amount. However, to the extent that all residents of a county have some responsibility for fire protection of a "basic county level" outside cities (as they do, for example, in the case of assistance to agriculture), this inequity is reduced or eliminated. If it is argued that cities should not support structural fire fighting in the unincorporated areas, a portion of the payment to the State could be considered as a subsidy by city residents. Since about one-third of all Schedule A division calls were for structural fires, it could therefore be estimated that such calls cost approximately $6,850. Of this amount city taxpayers would have contributed about $1,760.

Arrangements with cities: Informal agreements between the cities and the county provide for certain fire fighting activities. Actually these are intergovernmental cooperative plans resulting largely from the view of the board of supervisors that it is less wasteful to have fire services rendered by existing facilities than to duplicate such facilities.

A county-owned truck has been housed in the City of Napa Fire Station Number One since December, 1944, replacing an outmoded piece of equipment now housed at the Earl Stewart Dairy south of the city. The verbal agreement made at that time between the fire chief and the board of supervisors provided that the truck was to be considered as a piece of city equipment, but was to answer calls outside Napa as well. The county agreed to pay salaries for two city firemen, currently totalling $660 per month. The city, however, does not send any of its equipment outside Napa. The county truck is available for calls inside Napa, in the event of an emergency situation, but was actually so used only once during 1951. Since its placement in Napa, the county truck runs were as follows (runs by city trucks inside Napa are shown for comparison:

Year	*Total number of runs By county truck, outside Napa*	*By city trucks, inside Napa*
1944	164	207
1945	186	191
1946	215	213
1947	190	184
1948	160	155
1949	195	162
1950	92	124
1951	143	136

The break-down for county responses in 1951, by type, is shown below. Napa City runs are shown for comparison.

Type of fire or call	*County truck Number*	*Percent of total*	*City truck Number*	*Percent of total*
Structural	42	28.0	60	34.7
Grass, brush, rubbish	89	59.3	38	22.0
Vehicle	14	9.3	29	16.8
First aid, etc.	4	2.7	29	16.8
False alarm	1	0.7	17	9.7
Total	150	100.0	173	100.0

An inspection of these provisions for fire protection in the area around Napa does not suggest that extraordinary, or even sufficient, amounts of service are being supplied. Actually, if two widely separated fires were to start simultaneously in the Napa fringe area, or if a fire were to get out of control, it seems clear that the available protection would be inadequate. County officials report that the standard of fire protection provided in the Napa fringe area is about the same as that received by most farm areas, and is certainly below city standards. That this is recognized by the county was made clear at a meeting on February 27th of this year, between the board of supervisors and the Napa City Council. The county proposed that the contract be broadened so as to provide more protection outside, with the county purchasing a second truck and paying for additional men. In addition, the county suggested that the contract provide for city trucks to make outside runs when needed. These proposals are currently being discussed. The supervisors felt that the formation of a fire protection district for the area outside Napa would not be a desirable solution because such a district would tend to discourage future annexation, and that it would also be another political subdivision with another board, thus complicating local government relationships even further. On the other hand, the City of Napa states that it is furnishing more protection under the existing agreement than the county is paying for, to the extent of three firemen and sundry overhead items totaling about $10,000 annually.

Napa County also purchases, or contributes to the purchase of, fire equipment housed in St. Helena and Calistoga in return for which fire-fighting service is rendered outside those cities. Both cities have volunteer fire departments, but defray all operating and maintenance costs, including compensation insurance. In addition, Calistoga currently budgets $1,100 as the fire chief's salary. The county recently replaced the old truck it had purchased for St. Helena with one costing $17,000. This truck and one city pumper respond to outside calls, and the county-purchased truck also is used on every city call. All outside calls in 1951 totaled 21, of which five were structural and 16 were grass and brush. St. Helena officials state that these trucks will go anywhere they are called, but in practice they make runs in an area about three miles around St. Helena, bounded by White Sulphur Springs, Rutherford and the Madrones. These fires were principally in farm areas and were also responded to by the Division of Forestry, partly under the provisions of the contract with the county. There were 22 inside calls.

The county has paid $8,000 to Calistoga in previous years, representing about 50 percent of the purchase price of two city trucks. These are available for fighting fires outside the city. In 1951, 19 runs were made outside, 16 of them being grass fires and the remainder structural fires. Inside runs also totaled 19.

These arrangements with cities thus provide fire protection service to city and noncity residents alike, except in the case of the City of Napa. While the county truck stationed in Napa is supposed to be used as city equipment, it is actually held in readiness for outside runs, and is not usually used inside the City of Napa. Thus, the amount of $7,200 paid to the city for operating this truck largely supports fire protection in the unincorporated areas. However, 70 percent of these runs appear to be classifiable as responses to fires involving general county responsibility, while the remaining 30 percent involve structural fires. On this basis, then, $2,160 may be considered to represent county outlays for fighting structural fires with the truck housed in the City of Napa. Of this amount, 25.7 percent, or $560, may be estimated as the amount contributed by the residents of cities.

Arrangements with Volunteer Groups Outside Cities: Table 16 also shows that the county has made trucks available to volunteer fire departments located at Chiles, Pacific Union College, St. Helena Sanitarium and Stewart's Dairy. These are entirely manned by volunteers, and operating and maintenance costs are met through local fund-raising efforts. In the case of Rutherford, even the truck was locally financed. The county pays for compensation insurance on all volunteer firemen operating county or volunteer equipment. Persons contributing to these volunteer operations (particularly the residents of Rutherford) would appear to be inequitably treated as compared with persons in the areas just outside the three cities. They pay the same county tax rate for fire protection, yet they also make individual outlays in support of volunteer operations.

Other arrangements also exist with respect to fire protection in Napa County. The county contracts with the Fairfield-Suisun Fire District in Solano County to provide rural fire protection in Gordon Valley during the winter months, at a cost of $500 per year. In addition to these arrangements, the county has, over a period of some years, paid installation charges of approximately $100 apiece on about 60 hydrants in scattered locations throughout the county. For the fiscal year 1952 it budgeted $2,500 for additional installations, and $4,200 for the water used in the hydrant system.

It therefore appears, in summary, that the county is furnishing only a basic level of fire protection outside cities. Certainly the protection appears to fall short of municipal standards. Except for portions of the state contract payment and the contract with the City of Napa, expenditures for fire protection seem to provide a service of county-wide importance. Structural fire protection operations under the state contract and under the arrangement with the City of Napa resulted in combined expenditures of about $9,010 from the general fund, and it may be estimated that residents of cities contributed $2,320 of this amount.

THE POUND DEPARTMENT. In 1950-51, Napa County budgeted a total of $10,105 for county humane services. The City of Napa, however, paid the county the amount of $3,300 for county enforcement of the animal control ordinance of the city. Thus the net county expenditure for this service amounted to $6,805. The county maintains an animal pound and information presented to the committee indicates that this service is provided to the same extent to all residents living outside city areas. Aside from the contract service provided to the City of Napa, this service is provided only to residents of areas outside cities and the level of service in the urban unincorporated areas and rural areas is the same. The City of St. Helena has requested regular county pound service from the board of supervisors, but no action has been taken as yet. The contributions of city residents can be estimated at $1,750, or about 38 percent of county expenditures on this service.

Health and Sanitation. Public health services in Napa County in 1951-52 were budgeted at a total amount of $114,230. This included expenditures for both the administration of the county health department and the county tubercular care program. The revenues related to the activities of this department were estimated at $9,850, so that the net expenditures on public health of concern in this study amounted to $104,380.

The tubercular care program is available to all residents of the county. For other activities, the county health department budget amounted to $70,000. The county maintains a health department office in Napa, and part-time offices in other cities. The cities of the county maintain no health departments of their own, and pursuant to state statute, they have requested the county to assume public health functions therein. In addition, they have requested the county to enforce a number of city health ordinances on a contract basis. In 1951-52, the cities paid the county the following amounts for these extra amounts of health service:

City	*Amount paid*
Napa	$5,100
St. Helena	1,080
Calistoga	720
Total	$6,900

The county health department also provided services to 22 school districts. Charges amounting to $2,050 were collected for these services. In addition to these charges, the health department also collected about $900 for health inspections performed for all residents of the county.

Highways and Bridges. Expenditures for highways and bridges from the special road improvement fund of Napa County in 1951-52 are shown below.

Administration and engineering		$39,400
Highway lighting		4,200
Primary roads		351,000
Construction	$285,000	
Maintenance	66,000	
Secondary roads		237,470
Construction	137,850	
Maintenance	99,620	
Acquisition		37,750
Overhead		11,400
Total		$681,220

County road funds expended inside cities are not separately tabulated by the engineering and road department. The department reported, however, that 0.23 miles of streets inside the City of Napa and 0.93 miles inside Calistoga were maintained by the county. Detailed figures for 1950-51 expenditures on road construction and maintenance are presented below.

	Construction		*Maintenance*		*Total*		*Average expenditure per mile, construction and maintenance*
	Mileage	*Amount*	*Mileage*	*Amount*	*Amount*	*Percent*	
Primary roads	15.8	$71,324	151.6	$61,449	$132,773	47.7	$876
Urban secondary roads	19.4	9,302	32.2	10,305	19,607	7.0	609
Rural secondary roads	20.0	49,502	301.1	76,580	126,082	45.3	419
Totals	55.2	$130,128	484.9	$148,334	$278,462	100.0	$574

Primary roads form the basic county road system and are clearly vested with a general county interest. In 1950-51 expenditures on primary road construction and maintenance, exclusive of overhead, accounted for 47.7 percent of all construction and maintenance. Secondary roads provide links to points off the main routes. They take on a more local character in that they may not often be used by persons outside a given area. Rural secondary roads also have these characteristics. They accounted for 45.3 percent of road outlays for construction and maintenance in 1950-51. Combined construction and maintenance costs averaged $419 per mile.

The remaining category, urban secondary roads, involved 7 percent of the 1950-51 construction and maintenance costs. These roads were located in the more densely populated areas of the county outside cities. To some extent they provide access to residences, and it is likely that some of them are purely access roads used by a very limited group. However, it can hardly be denied that many roads in this category are also integral links in the secondary road system and thus are of county-wide importance and properly supported by county general funds. Combined construction and maintenance costs for these roads averaged $609 per mile, or about 50 percent more than the average for rural secondary roads. The higher cost is traceable to the greater maintenance required by a heavier volume of traffic. Construction costs, on the other hand, were actually higher for rural secondary roads.

In fiscal 1952, the county for the first time budgeted moneys from the general fund for general road purposes. Prior to 1947, financial assistance was given to cities for streets, but with the passage of the Collier-Burns Highway Act in 1947, this aid was stopped. The county, furthermore, performs no road or street work for cities, nor does it rent road equipment to cities. Occasionally equipment is loaned to cities on a reciprocal basis. The county has followed the policy of not performing any construction within cities, unless realignment through new construction on county roads causes them to fall partly within city limits. Moreover, since 1950, subdividers have been required to complete street work without county assistance. If the subdivider complies with county construction standards, subdivision streets are accepted and maintained at county expense.

The county makes no expenditures for curbs, gutters or sidewalks. Property owners desiring such facilities must pay for them. The county does not provide any street cleaning services. If highway safety is involved, the county will provide street lighting, but lights are not installed for pedestrian, general or traffic signal purposes. The amount of $4,200 for lighting, shown above, was to be expended for highway intersections and vehicular danger zones.

Recreation and Parks. No amount was budgeted for recreational purposes by Napa County in 1951-52. The board of supervisors, however, was studying a request that the county provide financial assistance in support of a joint recreation program to be operated by the City of Napa and the Napa School District. The county has no recreation department, but a Veterans' Memorial District has been created to provide auditorium facilities.

Education. Of a total of $56,507 budgeted for education, the county library involved expenditures of $34,570 in 1951-52. Related revenues from library service amounted to $6,100. Revenues in support of the county library were raised by property taxes imposed only upon residents receiving this service. The only exception was the salary of the librarian ($4,200) which was met, pursuant to provisions of the Education Code (Section 22137), from the county general fund. Of this amount, it may be estimated, from the fund distribution shown in Table 15, that $1,080 was paid by city residents.

The county operates a main library in the City of Napa and three branches, in Basalt, Salvador and the St. Helena Sanitarium. A bookmobile is operated in the rural areas. All of these facilities serve noncity residents as well as the students of all school districts other than the Napa School District.

Charities, Hospitals and Corrections. By far the largest portion of the Napa County budget in 1951-52 was allocated to the welfare and detention programs included under this heading. The total outlays of $1,655,429 amounted to 48.8 percent of the county budget. Of this sum, nine-tenths financed various categorical aid programs, and the remaining one-tenth financed various costs associated with detention institutions and hospital care. The county does not operate a hospital but contracts with private hospitals in St. Helena and the City of Napa for emergency and indigent care. Three ambulances pick up emergency cases and seriously-ill indigents for the county, on a contract basis. Pickups are made anywhere in the county, at general county expense. Ambulance costs are recovered from nonindigent patients. These services are provided to all who qualify for receiving them regardless of residence location. Hence no questions of subsidy arise with respect to hospital services in this county.

Miscellaneous Budget Items

Miscellaneous items include advertising county resources ($14,300); rebates and refunds ($14,100); and airports ($16,330).

The Napa County Airport is located at the southern end of the county and is the only public airport in the county. Traffic consists almost exclusively of local private planes, many of which are owned by residents of the City of Napa. The airport is self-supporting through fees charged to the users. For fiscal 1952 it was estimated that such revenues would amount to $17,500, as against budgeted expenditures of $16,330.

Reserves

Napa County reserves in 1951-52 are shown below.

Unappropriated reserve	$62,000
General reserve	20,000
Capital improvement fund	102,515
Total	$184,515

The two reserve funds represent moneys held against contingencies. Payments from these reserves during the past two years show no expenditures which were not county-wide in nature. The capital improvement fund has been set aside to finance additions to county buildings. These additions are required to provide additional space for county government operations.

Summary

The preceding analysis of various county services is summarized in Table 17. This table shows the amounts of so-called net expenditures concerning which questions with respect to the type and the level of service might be raised. These expenditures amount to $65,315, or 2 percent of the net amount. Most of this amount relates to expenditures for protection services, especially those of law enforcement and fire protection. In this category of county service, $55,815, or 22.4 percent of the total of $249,068, may be considered as an amount of expenditure for which support by city residents may be questioned. Expenditures for library service of $4,200, or 8.3 percent of total expenditures for this purpose; and expenditures for general government functions of $5,300, or 1.5 percent of total expenditures for general government, are also open to question.

Table 18 shows the amounts of these three services which are estimated as paid by city residents. The total of the expenditures estimated to involve questions of equity amounted to $65,315. It is further estimated that revenues in the amount of $41,210 may be considered as traceable to property taxpayers in various areas and paid in support of these services. Of these traceable revenues, it is further estimated that $16,810 is traceable as having been paid by taxpayers residing in cities. In other words, city residents who do not receive the planning, protection and library services shown, contribute, as far as county revenues can be traced, $16,810 toward their support.

TABLE 17
NAPA COUNTY
DISTRIBUTION OF NET EXPENDITURES FOR COUNTY SERVICES, BY BUDGET CATEGORY
1951-52

Budget category	*Net expenditures* [a]	*Expenditures affecting the entire county* [b]	*Percent of total net expenditures*	*Expenditures affecting less than the entire county* [c]	*Percent of total net expenditures*
General government	$356,943	$351,643	98.5	$5,300	1.5
Protection to persons and property	249,068	193,253	77.6	55,815	22.4
Health and sanitation	104,380	104,380	100.0	---	--
Highways and bridges	681,220	681,220	100.0		--
Education	50,507	46,307	91.7	4,200	8.3
Charities and corrections	1,648,029	1,648,029	100.0	---	--
Miscellaneous and reserves	211,745	211,745	100.0	--	--
Total	$3,301,892	$3,236,577	98.0	$65,315	2.0

NOTES:

[a] Budgeted expenditures less a total of $88,610 of fees, charges and other revenues related to various services. See Appendix A, Table 1.

[b] Expenditures in this column either support county services which are clearly county-wide or involve considerations of revenue sources and county policy which create no inequities for any groups of county taxpayers.

[c] Expenditures in this column are financed to some extent out of county property tax levies and other county-wide revenues, but they provide services which are less than county-wide.

SOURCE: Analyses of county department operations and expenditures. Budget figures from the Napa County Final Budget for the Fiscal Year July 1, 1951, to June 30, 1952.

TABLE 18
NAPA COUNTY
COUNTY SERVICES PROVIDED TO LESS THAN THE ENTIRE COUNTY AND FINANCED BY TRACEABLE REVENUES
1951-52

			Estimated amount of traceable revenues	
Budget categories and departments	*Net expenditures affecting less than the entire county*	*Estimated total traceable revenues*	*Financing county services outside all cities*	*Collected from residents of all cities*
General government				
County planning commission	$5,300	$3,340	$3,340	$1,360
Protection to persons and property				
Sheriff's office	40,000	25,240	25,240	10,300
Fire protection	9,010	5,690	5,690	2,320
Pound	6,805	4,290	4,290	1,750
Total	55,815	35,220	35,220	14,370
Education				
Library	4,200	2,650	2,650	1,080
Total	$65,315	$41,210	$41,210	$16,810
Percentage of total traceable revenue		100.0	100.0	40.8

SOURCE: Analyses of Napa County department operations and expenditures. Budget figures from the Napa County Final Budget for the Fiscal Year July 1, 1951, to June 30, 1952.

TABLE 19
NAPA COUNTY
HYPOTHETICAL COUNTY PROPERTY TAX RATES WHICH RESULT FROM SHIFTING THE CITY SHARE OF THE TRACEBLE COST OF LESS-THAN-COUNTY-WIDE SERVICES FROM CITY TO NONCITY RESIDENTS
1951-52

Tax area	*Assessed valuation 1951-52*	*City share of the traceable cost of less-than-county-wide services*	*Tax rate required to raise the city share*	*Total increase or decrease in county tax rate*	*Basic county tax rate 1951-52*	*Hypothetical county tax rate*
Tax rate reductions						
All cities	$19,752,360	$16,810	$0.0851	$0.0851	$2.32	$2.235
Tax rate increases						
All unincorporated areas	26,999,785	16,810	0.0622	0.0622	2.32	2.382

SOURCE: Assessed valuations from "Annual Report of Financial Transactions of Municipalities and Counties of California for the Fiscal Year Ending June 30, 1951," Office of the State Controller, Sacramento, California; city share of costs from Table 18.

Table 19 shows the amounts estimated as paid by city residents in terms of the hypothetical property tax rates which would result if these payments were shifted from city to county residents. The county tax rate paid by city property taxpayers would be reduced from $2.32 to $2.235 per $100 of assessed valuation; while the tax rate paid by property owners in the unincorporated areas would be increased from $2.32 to $2.382 per $100 of assessed valuation.

CITY SALES TAXES AND PARKING METER FEES

The City of Napa is the only city in the county which levies a retail sales tax, but all three cities collect parking meter fees. City revenues in 1950-51 from these two sources are shown in Table 20 below.

TABLE 20
NAPA COUNTY
CITY REVENUES FROM RETAIL SALES TAXES AND PARKING METER FEES
1950-51

City	*Retail sales taxes*	*Parking meter fees*
Calistoga	---	$4,385
Napa	$142,360	42,523
St. Helena	---	6,288
Total	$142,360	$53,196

SOURCE: "Annual Report of Financial Transactions of Municipalities and Counties for the Fiscal Year Ending June 30, 1951," Office of the State Controller.

While these cities obviously collect part of these revenues from noncity as well as city residents, the respective shares paid by these two groups cannot be accurately determined in the absence of a specific count. However, a very rough estimate may be advanced on the basis of a recent determination by the State Board of Equalization that 20 percent of all taxable sales inside cities are made to residents of unincorporated areas.[4] If this percentage is applied to figures shown above in Table 20, the shares of these revenues paid by noncity residents in 1950-51 would have approximated the following figures.

	Total revenues	*Estimated share paid by noncity residents*
Sales taxes	$142,360	$28,500
Parking meters	53,196	10,600
Total	$195,556	$39,100

COUNTY AND SPECIAL DISTRICT TAXES PAID BY CITIES

During 1950-51, the various cities of Napa County paid taxes to the county and to special districts on city-owned property located outside city limits. The amounts of such taxes and the city facilities taxed are shown below.

City	*Taxes paid*	*Facility taxed*
Napa	$2,281.83	Watershed and storage area, Water distribution facilities.
St. Helena	21.56	Water works and city dump.
Calistoga	124.81	Water storage, sewage disposal plant.
Total	$2,428.20	

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[4] "What's Next in Local Sales Taxes?", State Board of Equalization, Sacramento, California, January, 1951, p. 17.

CHAPTER IV

SACRAMENTO COUNTY

GENERAL CHARACTERISTICS OF SACRAMENTO COUNTY

Physical and Economic Characteristics

While Sacramento County has long been a rich agricultural area, trade and manufacturing have grown rapidly in recent decades. Most of the county is rich valley land, and 79 percent of its total area of 630,400 acres is in farms. The county ranked forty-third in area and eighth in population in 1950. In population it declined from seventh place in 1930 and 1940 to eighth place among the counties of the State in 1950. Table 1 compares the population growth of Sacramento County between 1940 and 1950 with that of other counties of comparable size. A map of the county is presented in Figure 1 showing the incorporated cities, urban fringe areas, urban communities and rural communities of the county.

TABLE 1

SACRAMENTO COUNTY
POPULATION INCREASES FOR SACRAMENTO COUNTY AND SELECTED COUNTIES OF COMPARABLE SIZE
1940 to 1950

	Population		*Percentage increase from*
	1940	*1950*	*1940 to 1950*
SACRAMENTO	170,333	277,140	62.7
San Joaquin	134,207	200,750	49.6
Fresno	178,565	276,515	54.9
Orange	130,760	216,224	65.4
Santa Clara	174,949	290,547	66.1
Kern	135,124	228,309	69.0
San Bernardino	161,108	281,642	74.8
San Mateo	111,782	235,659	110.8
Contra Costa	100,450	298,984	197.6

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

The City of Sacramento is the largest city in the county and the ninth largest city in the State. Throughout its existence, this city has been a wholesale, finance, shipping and service center for the Sacramento Valley, and it is now an important industrial center. Fruit and vegetable processing, flour milling, tin can manufacturing, lumber, wood products and agricultural implements lead in industrial importance. North Sacramento, incorporated in 1924, is located across the American River north of the City of Sacramento. It is one of the fastest-growing communities in the State. Its major industries comprise meat packing, brick making and machinery manufacturing. Isleton, incorated in 1923, and Galt, incorporated in 1946, are small cities located in predominantly agricultural areas in the southern portion of the county. Folsom, incorporated in 1946, completes the list of cities. Situated in the extreme northeast corner of the county, at the intersection of important highways, it serves as a trading center for those engaged in agricultural and mining pursuits.

Population Distribution

Most of the new residents of the county have settled in suburban areas around the City of Sacramento and in the City of North Sacramento. Residential developments like Del Paso Heights, Sierra Oaks and Town and Country have attracted many people to settle in areas outside the city limits of Sacramento. Thus, population growth in Sacramento County has been more rapid in the unincorporated areas than in the cities. Table 2 presents 1940 and 1950 population data for the incorporated and unincorporated areas. The data show that residents outside cities accounted for 46.5 percent of total county population in 1950, compared to 34.9 percent in 1940. City residents on the other hand accounted for 65.1 percent in 1940 compared with only 53.5 percent in 1950. This change in the unincorporated-incorporated ratio resulted from an increase of 117 percent in population outside cities as contrasted with a gain of only 34 percent inside cities. The City of Sacramento experienced a population increase of 30 percent; the City of Galt declined 13 percent; and the City of North Sacramento showed a gain of more than 97 percent. Figure 2 shows the growth in county population from 1900 to 1950 and the changes in the distribution of the population which occurred between 1940 and 1950.

The distribution of the *urban* population in Sacramento County in 1950 as between cities and unincorporated urban areas is shown in Table 3. Sacramento County ranked second only to San Mateo County in the proportion of total population living in urban areas.

TABLE 2

SACRAMENTO COUNTY
POPULATION OF INCORPORATED AND UNINCORPORATED AREAS
1940 and 1950

	Population		*Percent of total population*		*Percentage change 1940*
Area	*1940*	*1950*	*1940*	*1950*	*to 1950*
Incorporated areas	110,848	148,221	65.1	53.5	33.7
Sacramento	105,958	137,572	62.2	49.6	29.8
North Sacramento	3,053	6,029	1.8	2.2	97.5
Folsom	[a]	1,690	--	0.6	--
Isleton	1,837	1,597	1.1	0.6	—13.1
Galt	[a]	1,333	--	0.5	--
Unincorporated areas	59,485	128,919	34.9	46.5	116.7
Total	170,333	277,140	100.0	100.0	62.7

NOTE: [a] Incorporated after 1940.

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

It also ranked second to Kern County in the proportion of population residing in unincorporated urban areas.

Changes which occurred in the population of the unincorporated area of the county between 1940 and 1950 may be shown by reference to judicial townships. Figure 3 shows the location of townships in Sacramento

FIGURE 1

SACRAMENTO COUNTY
INCORPORATED AND UNINCORPORATED AREAS

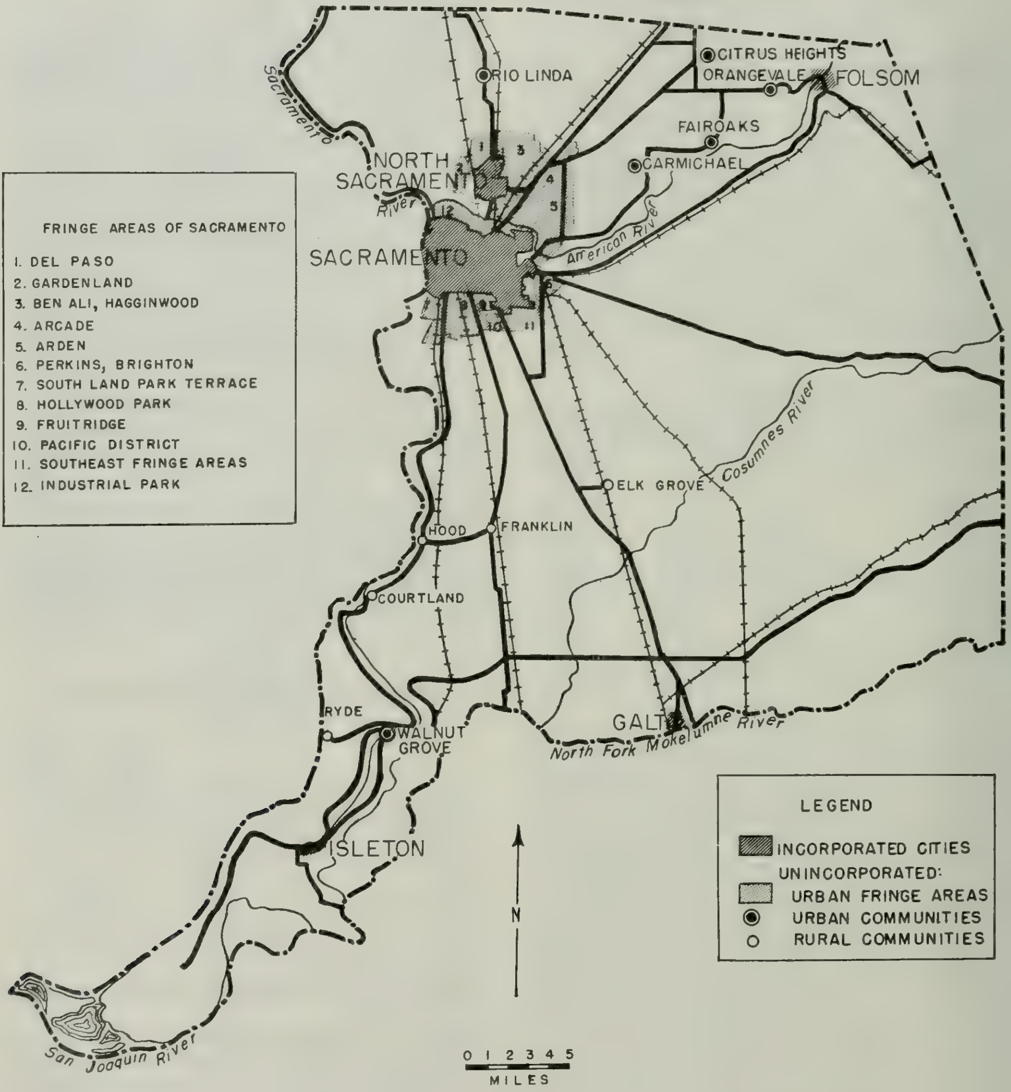
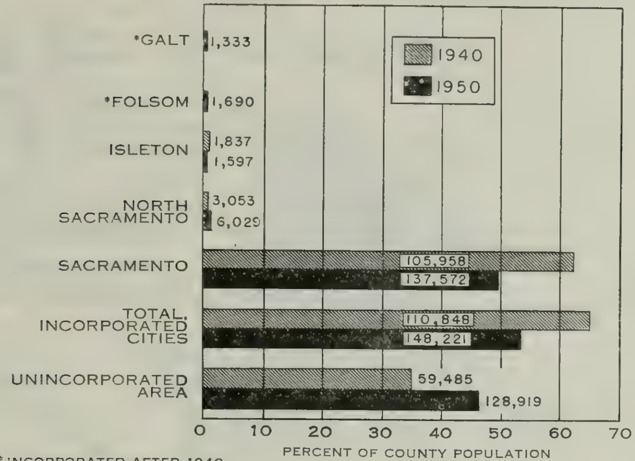


FIGURE 2

SACRAMENTO COUNTY POPULATION OF CITIES AND UNINCORPORATED AREAS 1940 and 1950



* INCORPORATED AFTER 1940

TABLE 3

SACRAMENTO COUNTY URBAN POPULATION IN SACRAMENTO COUNTY AND SELECTED COUNTIES OF COMPARABLE SIZE

1950

	Percent of total county population			*Unincorporated urban area population as a percentage of total urban population*
County	*Urban areas*	*Cities*	*Unincorporated urban areas*	
SACRAMENTO	74.8	53.5	21.3	28.5
Fresno	56.2	46.6	9.6	17.0
Kern	59.4	25.2	34.2	57.6
San Bernardino	66.4	52.2	14.2	21.3
Orange	67.6	57.6	10.0	14.8
San Joaquin	69.2	49.1	20.1	29.1
Contra Costa	71.7	59.1	12.6	17.6
Santa Clara	74.3	55.4	18.9	25.5
San Mateo	93.1	78.2	14.9	16.0
Average	70.3	53.2	17.1	24.3

SOURCE: Calculated from data in Table 1 and from the U. S. Bureau of the Census, 1950 Population in California.

County as well as the unincorporated urban and rural communties located in each township. Table 4 below shows population changes in the unincorporated areas of these townships between 1940 and 1950. The greatest increases during this decade occurred in American, Brighton and Center Townships, in the areas surrounding the Cities of Sacramento and North Sacramento. Center Township showed a gain of approximately 306 percent, and gains in American and Brighton Townships approximated 160 and 156 percent, respectively. Of the other four and largely rural townships, two, Georgiana and Granite, lost population over the decade. Table 4 shows clearly that the important urban concentrations outside cities in Sacramento County are located in the unincorporated areas of American, Center and Brighton Townships.

Table 5 shows the distribution of the population of Sacramento County in 1950 as between cities, unincorporated urban areas and rural areas. City population amounted to 148,221, or 53.5 percent of total county population; the population of unincorporated areas amounted to 75,053, or 27.1 percent of the total; and

TABLE 4

SACRAMENTO COUNTY POPULATION CHANGES IN THE UNINCORPORATED PORTIONS OF TOWNSHIPS

1940 to 1950

	Population		*Percentage change*
Township [a]	*1940*	*1950*	*1940 to 1950*
American	14,174	36,940	160.62
Brighton	10,187	26,113	156.34
Center	10,505	42,684	306.32
Georgiana	5,884	5,349	—9.09
Granite	5,572	3,505	—37.10
Lee	3,226	3,365	4.31
San Joaquin	9,937	10,963	10.32
Total	59,485	128,919	116.72

NOTE: [a] Parts of American Township were annexed to North Sacramento City in 1947 and 1948 and to Sacramento City in 1949; parts of Granite and San Joaquin Townships were annexed to Brighton Township in 1943; parts of Brighton Township were annexed to Sacramento City in 1946, 1948, and 1949; part of Granite Township was annexed to Center Township in 1943 and part of Center Township was annexed to Granite Township in 1950; part of Georgiana Township was annexed to Lee Township in 1943; and part of Lee Township was annexed to San Joaquin Township in 1943. Sacramento Township and those parts of American and Brighton Townships in Sacramento City were taken to form the independent city of Sacramento in 1950.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I. "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951.

FIGURE 3

SACRAMENTO COUNTY JUDICIAL TOWNSHIPS

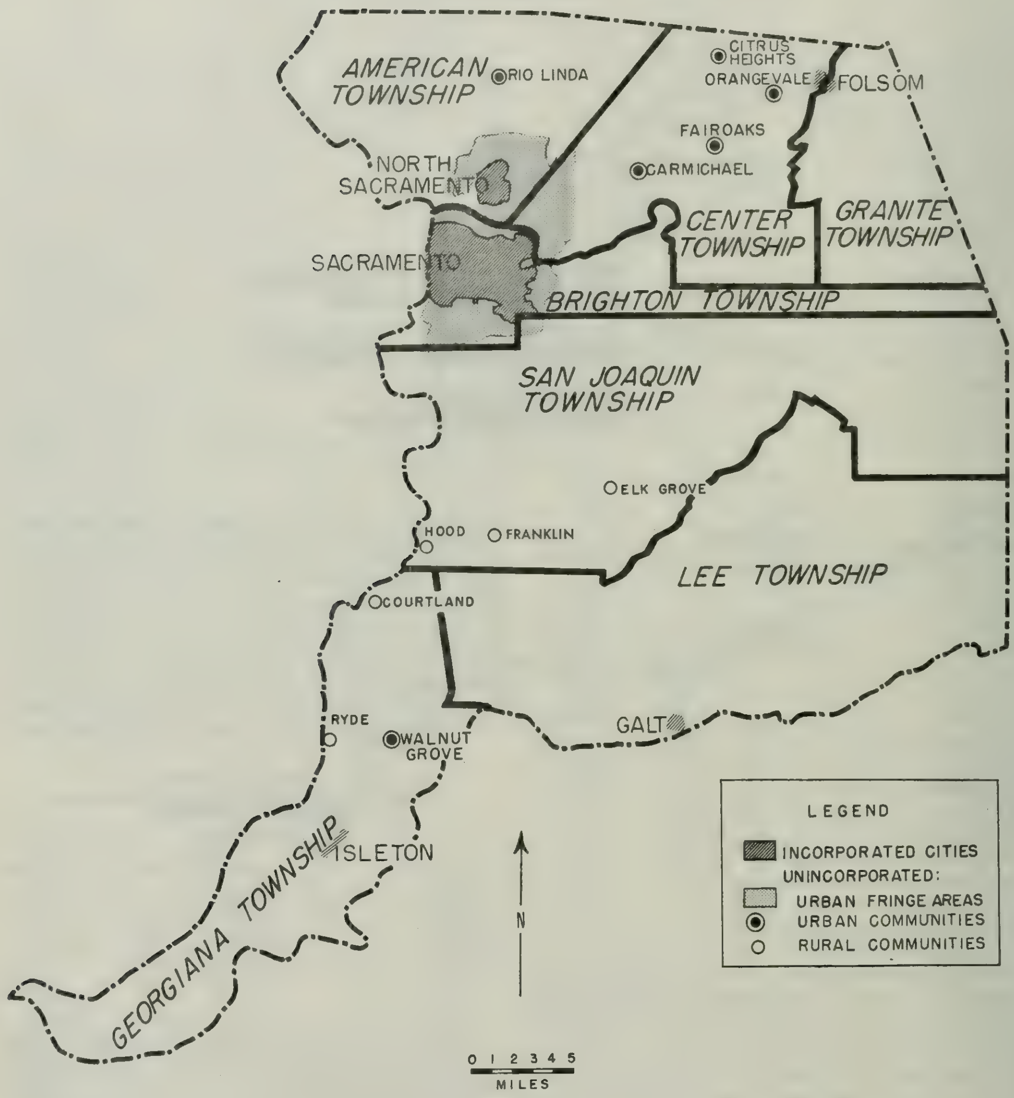
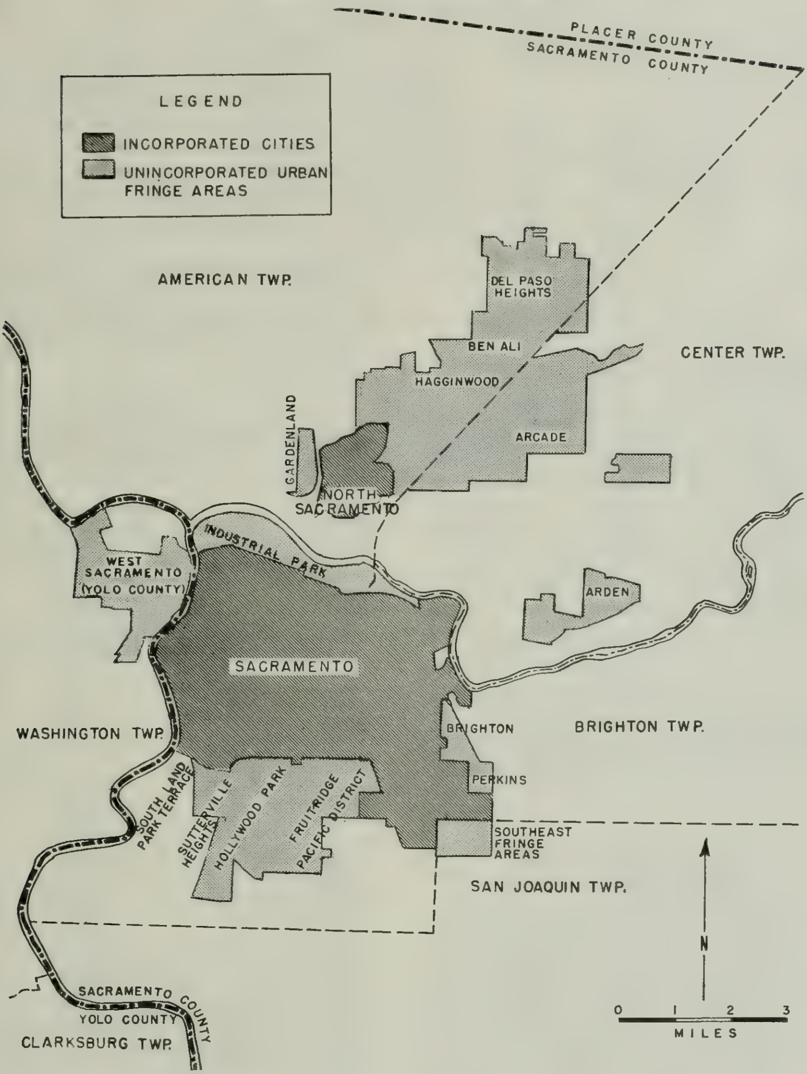


FIGURE 4
SACRAMENTO COUNTY
URBAN FRINGE AREAS, 1950



THE BUREAU OF THE CENSUS DEFINES AN URBANIZED AREA AS INCLUDING A CENTRAL CITY OF 50,000 OR MORE, PLUS THE URBAN FRINGE. THE URBAN FRINGE INCLUDES BOTH INCORPORATED AND UNINCORPORATED TERRITORY CONTIGUOUS TO THE CENTRAL CITY AND HAVING A POPULATION DENSITY OF AT LEAST 2,000 PERSONS PER SQUARE MILE, OR DEVOTED TO PURPOSES FUNCTIONALLY RELATED TO THE CENTRAL CITY. OTHER NONCONTIGUOUS AREAS WITH THE STIPULATED POPULATION DENSITY ARE INCLUDED IN THE URBAN FRINGE IF THEY ARE WITHIN 1½ MILES OF THE MAIN URBANIZED PART.

the rural population accounted for 53,866 persons, or 19.4 percent of the county total. The areas surrounding the City of Sacramento and the City of North Sacramento constitute the most highly urbanized parts of the unincorporated territory of the county. Figure 4 shows this urbanization and identifies the various urban communities located in the fringe areas of the cities of Sacramento and North Sacramento.

TABLE 5

SACRAMENTO COUNTY

POPULATION BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS

Areas	1950 Population	Percent of total county population
Cities	148,221	53.5
Sacramento	137,572	49.6
North Sacramento	6,029	2.2
Isleton	1,597	0.6
Folsom	1,690	0.6
Galt	1,333	0.5
Unincorporated urban areas	75,053	27.1
Del Paso Heights	16,425	5.9
Gardenland	2,470	0.9
Ben Ali and Hagginwood	4,638	1.7
Arcade	9,585	3.5
Arden	6,839	2.5
Perkins and Brighton Townsite	2,256	0.8
Southland Park Terrace and Sutterville Heights	3,071	1.1
Hollywood	6,124	2.2
Fruitridge	8,175	2.9
Pacific District	5,262	1.9
Southeast fringe areas	3,209	1.2
Carmichael	4,499	1.6
Others—including Rio Linda, Citrus Heights, Orangevale, Fair Oaks, and Walnut Grove	2,500[a]	0.9
Rural areas	53,866	19.4
Total	277,140	100.0

NOTE: [a] Estimated. The total population of these areas probably exceeds the 2,500 shown.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California. U. S. Government Printing Office, Washington, D. C., 1951. Population figures for the unincorporated urban areas were developed by appropriate grouping of data by census tracts, which do not necessarily correspond exactly with the boundaries of the urban areas themselves.

Assessed Valuations

The county tax base of Sacramento County in 1951-52 amounted to $300,186,522. Of this total amount, county assessed valuations inside cities accounted for $174,196,410, or 58 percent. County assessed valuations in urban unincorporated areas amounted to $57,762,411, or 19.3 percent of the total; and in the rural areas they amounted to $68,227,701, or 22.7 percent of the total. Table 6 shows the distribution of the county property tax base by city, unincorporated urban areas, and the rural area of the county. As compared with other counties, Sacramento County shows a relatively high proportion of its tax base located inside cities. In contrast to Kern County, where only 12.5 percent of the county assessed valuation was located inside cities, Sacramento County showed 58 percent. Kern County thus showed 87.5 percent of the tax base located in the unincorporated area, in contrast to 42 percent in Sacramento County. In terms of per capita assessed valuations, Sacramento County ranked fourth in valuations inside cities and ranked last in valuations in unincorporated areas. Table 7 presents these data for Sacramento and eight other counties in complete detail.

Table 8 presents a comparison of the distribution of population and the distribution of assessed valuations in Sacramento County. Cities accounted for 53.5 percent of the county population in 1950 as compared with 58 percent of the county tax base in fiscal 1952. The unincorporated urban areas contained 27.1 percent of the population, but only 19.3 percent of taxable property listed on the county assessment roll. Rural areas showed a closer relationship, with 19.4 percent of the population of the county and 22.7 percent of the county tax base.

TABLE 6

SACRAMENTO COUNTY

ASSESSED VALUATIONS BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS

Areas	1951-52 Assessed valuation	Percent of total county assessed valuation
Cities	$174,196,410	58.0
Sacramento	164,877,220	54.9
North Sacramento	6,000,180	2.0
Isleton	1,303,470	0.4
Folsom	1,138,970	0.4
Galt	876,570	0.3
Unincorporated urban areas	57,762,411[a]	19.3
Del Paso Heights	5,456,127	1.8
Gardenland	2,023,668	0.7
Ben Ali and Hagginwood	4,047,337	1.3
Arcade	7,920,992	2.7
Arden	9,584,456	3.2
Perkins and Brighton Townsite	3,186,190	1.1
Southland Park Terrace and Sutterville Heights	3,941,174	1.3
Hollywood	4,303,664	1.4
Fruitridge	3,884,022	1.3
Pacific District	2,753,480	0.9
Southeast fringe areas	1,093,700	0.4
Carmichael	5,069,472	1.7
Rio Linda	713,346	0.2
Citrus Heights	943,688	0.3
Orangevale	526,936	0.2
Fair Oaks	1,559,770	0.5
Walnut Grove	754,389	0.3
Rural areas	68,227,701	22.7
Total	$300,186,522	100.0

NOTE: [a] The assessed valuation for each of the unincorporated urban areas was obtained by multiplying the assessed valuation of the appropriate elementary school district by the ratio of the estimated urban area to the total school district area.

SOURCE: "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento.

TABLE 7

SACRAMENTO COUNTY

TOTAL AND PER CAPITA ASSESSED VALUATIONS FOR SACRAMENTO COUNTY AND EIGHT SELECTED COUNTIES

1951-52

	Assessed valuations			*Percent of total county assessed valuation*		*Per capita assessed valuation*		
County	*Total*	*Inside cities*	*Outside cities*	*Inside cities*	*Outside cities*	*County total*	*Inside cities*	*Outside cities*
SACRAMENTO	$300,186,522	$174,196,410	$125,990,112	58.0	42.0	$1,083	$1,175	$977
Kern	533,693,595	66,597,850	467,095,745	12.5	87.5	2,338	1,158	2,734
Fresno	574,554,130	131,647,085	442,907,045	22.9	77.1	2,078	1,021	3,002
San Bernardino	309,669,980	128,492,530	181,177,450	41.5	58.5	1,099	873	1,347
Contra Costa	334,617,810	143,326,780	191,291,030	42.8	57.2	1,119	811	1,564
San Joaquin	300,072,435	132,949,360	167,123,075	44.3	55.7	1,495	1,350	1,633
Orange	462,789,740	246,385,845	216,403,895	53.2	46.8	2,140	1,977	2,363
Santa Clara	399,091,370	229,197,320	169,894,050	57.4	42.6	1,374	1,424	1,311
San Mateo	260,122,804	194,086,461	66,036,343	74.6	25.4	1,104	1,054	1,283
Average	---	---	---	41.6	58.4	1,507	1,179	1,880

SOURCE: "Annual Report of Financial Transactions of Municipalities and Counties of California for the Fiscal Year Ending June 30, 1951," Office of the State Controller, Sacramento.

SPECIAL DISTRICTS IN SACRAMENTO COUNTY

In addition to five cities, Sacramento County also contained 68 single-purpose special districts in fiscal 1952. These special districts provided such municipal-type services as fire protection, lighting, recreation and sanitation, as well as many services like water, flood control and mosquito abatement, to the unincorporated areas of the county. Table 9 presents a list of these special districts by type of service provided; the tax base for each type of district; and the total expenditures budgeted for each district service in 1951-52.

TABLE 8

SACRAMENTO COUNTY

PERCENTAGE DISTRIBUTION OF POPULATION IN 1950 AND ASSESSED VALUATIONS IN 1951-52, BY AREAS

Areas	*Percent of total population 1950*	*Percent of total assessed valuation 1951-52*
Cities	53.5	58.0
Sacramento	49.6	54.9
North Sacramento	2.2	2.0
Isleton	0.6	0.4
Folsom	0.6	0.4
Galt	0.5	0.3
Unincorporated urban areas	27.1	19.3
Del Paso Heights	5.9	1.8
Gardenland	0.9	0.7
Ben Ali and Hagginwood	1.7	1.3
Arcade	3.5	2.7
Arden	2.5	3.2
Perkins and Brighton Townsite	0.8	1.1
Southland Park Terrace and Sutterville Heights	1.1	1.3
Hollywood	2.2	1.4
Fruitridge	2.9	1.3
Pacific District	1.9	0.9
Southeast fringe areas	1.2	0.4
Carmichael	1.6	1.7
Others—including Rio Linda, Citrus Heights, Orangevale, Fair Oaks, and Walnut Grove	0.9	1.5
Rural areas	19.4	22.7
Total	100.0	100.0

SOURCE: Tables 5 and 6.

The port and the mosquito abatement districts included the entire county, both incorporated and unincorporated areas. In fact, each of these two districts is jointly operated in Sacramento and Yolo Counties. The lighting, lighting maintenance, park, sanitation, sanitary, water and maintenance districts served only the residents of unincorporated areas. One fire district served an area inside the City of North Sacramento, but all others served only the residents of unincorporated areas. Six cemetery districts, with a total assessed valuation of approximately twenty-five million dollars, served both city and unincorporated areas. Almost 87 percent of the tax base of these districts was, however, located in the unincorporated part of the county.

The county board of supervisors acts as the governing body for seven of these types of districts (Table 9). The county provides certain "overhead" services to the districts, such as bookkeeping, auditing, budgeting and tax collecting. The district attorney also provides special districts with a considerable amount of legal service. No charges are made by the county for these services and, in fact, the acts pursuant to which most of these districts were created do not provide for county charges for such overhead services.

CITY SERVICES EXTENDED TO OUTSIDE AREAS

City expenditures for selected services of concern in this report are shown in Table 10. The table presents both total and per capita expenditures for each service. The City of Sacramento is the only city in the county where significant use is made of city services and facilities by noncity residents. Most of this use occurs in connection with recreational and park facilities and the emergency hospital. In the case of some services, noncity residents pay higher rates than city residents; in the case of others, fees charged outside residents are the same as those paid by city residents; and in still others, noncity residents are charged, while city residents are not. The following sections discuss these city services and the conditions under which they are extended to outside users.

TABLE 9

SACRAMENTO COUNTY
ASSESSED VALUATIONS AND EXPENDITURES OF SPECIAL DISTRICTS
1951-52

			Assessed valuation				
Type of district	*Number of districts*	*Governed by*	*Total amount*	*As a percent of total county valuation*	*Amount in unincorporated areas*	*Valuation in unincorporated areas as a percent of total district valuation*	*Budgeted operational expenditures 1951-52*[a]
Fire protection	23	Local boards	$116,588,589	38.8	$108,491,579[c]	93.1	$612,075
Fire protection	4	Board of supervisors	13,887,250	4.6	13,887,250	100.0	96,216
Lighting	6	Board of supervisors	4,305,070	0.3	4,305,070	100.0	14,353
Lighting maintenance	1	Board of supervisors	282,060	0.1	282,060	100.0	1,200
Park	2	Local boards	7,614,795	2.5	7,614,795	100.0	44,775
Park	4	Board of supervisors	12,585,390	4.2	12,585,390	100.0	49,420
Sanitation	2	Board of supervisors	25,654,130	8.5	25,654,130[d]	100.0	167,588
Sanitary	2	Local boards	8,429,205	2.8	8,429,205	100.0	126,831
Water	1	Local board	771,200	0.3	771,200	100.0	14,353
Maintenance[b]	14	Board of supervisors	21,471,443	7.2	21,471,443	100.0	113,041
Flood control	1	Local board	45,804,000	15.2	----[e]	--	64,557
Cemetery	6	Board of supervisors	24,770,077	8.2	21,466,517	86.7	28,582
Mosquito abatement	1	Local board	300,173,092	100.0	125,990,112	42.0	139,077
Port	1	Local board	300,173,092	100.0	125,990,112	42.0	83,696

NOTES:
[a] Bond interest and principal requirements are not included.
[b] Includes six water maintenance districts, four sewer maintenance districts, two sewer and water maintenance districts, and two drainage maintenance districts.
[c] Two code areas in the City of North Sacramento are in one of these fire districts, but the total valuation was not available.
[d] Two code areas in the City of Sacramento are in one of these sanitation districts, but the total valuation was not available.
[e] Data not available.

SOURCE: "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento.

TABLE 10

SACRAMENTO COUNTY
CITY EXPENDITURES FOR SELECTED FUNCTIONS[a]
1950-51

	General government[b]		Planning		Police protection[c]		Fire protection[c]		Dog pound		Health		Streets		Recreation	
City	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita
Folsom	$4,427	$2.62	--	--	$5,735	$3.39	$5,592	$3.31	--	--	--	--	$5,643	$3.34	$5,357	$3.17
Galt	6,663	5.00	$150[d]	$0.11	6,198	4.65	--	--	$365[d]	$0.27	--	--	15,287	11.47	--	--
Isleton	11,247	7.04	--	--	10,834	6.78	3,985	2.50	--	--	--	--	6,473	4.05	2,337	1.46
No. Sacramento	40,319	6.69	100[d]	0.02	26,771	4.44	17,765	2.95	--	--	$20	--	35,543	5.90	5,148	0.85
Sacramento	683,435	4.97	33,450[d]	0.24	1,022,405	7.43	949,128	6.90	13,692[d]	0.10	262,764	$1.91	1,131,049	8.22	1,107,945	8.05
Total	$746,091	$5.03	$33,700	$0.23	$1,071,943	$7.23	$976,470	$6.59	$14,057	$0.09	$262,784	$1.77	$1,193,995	$8.06	$1,120,787	$7.56

NOTES:
[a] Includes operation, maintenance, and capital outlay.
[b] Exclusive of amounts budgeted for planning.
[c] The amount shown under "outlays" in the protection to persons and property classification is divided equally between police and fire protection.
[d] Data from estimated expenditures in the budget for 1951-52.

SOURCE: Unless otherwise indicated, data are from the "Annual Report of Financial Transactions of Municipalities and Counties of California for the Fiscal Year Ending June 30, 1951," Office of the State Controller, Sacramento, Tables 4 and 7.

City Services Involving Charges

General Government Services. The only city charge for a general government service to the county occurs in North Sacramento. This city charges the county for space it makes available for justice court and the judge's chambers. The annual rental amounts to $300.

Utilities. The City of Sacramento extends water and sewer service to outside residents. In December 1951, there were 2,490 outside water connections and 48 sewer connections served by Sacramento. Most of these were connections located in the urban unincorporated area lying south of the city. Outside rates were 50 percent higher than the rates charged to residents of the city, both for water and for sewer service. The one exception to the 50 percent higher rate was the water rate charged to the residents of the Dos Rios Housing Project, which was only 25 percent higher.

The City of Sacramento also contracts to provide sewage service to North Sacramento; the Hagginwood Sanitation District; the Arden-Watt Maintenance District; County Sanitation District No. 1; and County Sanitation District No. 2. For Sanitation District No. 1, only sewage treatment is provided, but for all the rest, sewer lines and pumping are also provided. Contracts between the city and these local units are written on an actual cost basis, which includes a proportionate share of the capital outlay involved.

Libraries. The City of Sacramento makes a charge of $2 per year to noncity borrowers for city library privileges. Very liberal exemptions to this policy are, however, provided. Any person living outside the city who owns property, works, or attends school in the city, or who is a member of the armed services may use the library free of charge. The city library reported 48,000 borrowers in December, 1951, and estimated that 10 percent of these borrowers lived outside the city. Residents of the City of Sacramento do not pay the county property tax rate of $0.06 per $100 of assessed valuation for county library service.

City Services Provided Without Charge

General Government Services. Services within this general category were rendered to the county without charge by two cities. The City of Sacramento provided registration of voters and issued over 4,000 dog licenses for the county. The City of Folsom supplied the same two services without charge.

Protection to Persons and Property. The City of Sacramento provides the services of its police radio station to the sheriff's department free of charge. The sheriff's cars depend entirely upon this radio service. The service can reach over the entire county when the sheriff's activities require it.

Prior to January 1, 1952, the City of Sacramento also provided fire protection service in the unincorporated industrial area lying to the north, between the city and the American River. This service was provided to four large industrial establishments, who were charged for it on a contractual basis. The service was discontinued in January, 1952. The city now provides aid in fire fighting only if a major emergency occurs.

The only city currently providing outside fire service of any consequence is Isleton, but this service is not financed by the city alone. In 1951-52, the Isleton city budget listed $5,780 for fire protection, and approximately 80 percent of this amount was for operation and maintenance of equipment. The personnel are on a voluntary basis, and nominal amounts are paid to those who serve the department. The Isleton Fire District, which budgeted $18,760 in fiscal 1952 for fire protection, maintains district equipment in Isleton. This equipment is also manned by the city volunteer department, and both city and district equipment is used to fight fires inside or outside the city limits.

Health and Sanitation. The City of Sacramento sends its ambulance outside the city limits on emergency calls, but only if the need is urgent and other facilities are inadequate. However, its emergency hospital, staffed by five doctors and five nurses, with a budget of $52,219, handles emergency cases without charge and with no restriction as to residence. In 1951, 13,000 patients were treated, of which an estimated 2,600, or 20 percent, were not city residents.

Recreation and Parks. The City of Sacramento operates 18 parks distributed over various sections of the city. Twelve are one block in size; five range from two to four blocks; and three are between five and ten blocks in size. Budgeted expenditures for parks during 1951-52 amounted to $576,447, and receipts were estimated at $7,500. In addition, one public golf course is located in the southwest corner of the city, and two other municipal courses are located outside the city—one at Del Paso Park and the other near the Sacramento Airport. These involved operating and maintenance expenditures of $90,071 and revenues of $98,150. The McClatchy and Clunie Pools are city-operated. In fiscal 1952 expenditures totaled $30,251 and revenues amounted to $19,825. The expenditures for the Sacramento Municipal Auditorium were budgeted at $45,935, with receipts estimated at $44,000. The Crocker Art Gallery budget amounted to $43,871. In addition to these city facilities, the City of Sacramento also budgeted $2,500 toward the maintenance of Del Paso Park, about three miles northeast of the city limits. Originally deeded to the city, this park reverted to county ownership when it was determined, several years ago, that at least half the users were residents of unincorporated areas. Since that time, the county and the City of Sacramento have shared the operating costs.

No data are available showing the residence of persons using these city facilities. City officials report that about 30 percent of their use comes from persons who reside elsewhere. Charges are made for certain facilities, such as swimming pools, golf courses, and the auditorium, but city residents pay the same amounts for their use as noncity residents.

Isleton reports that its ballpark, park and beach facilities are used as much by residents of the surrounding area as by city residents. This city budgeted $3,161 for these facilities in 1951-52, plus an additional $1,000 as a special purpose item for children's recreation improvements in the city park.

The City of North Sacramento budgeted $5,172 for park and playgrounds in 1951-52, and $1,162 for the City Youth Center. For the most part, the facilities of this city are centrally located, so that a minimum of use by noncity residents is probably involved. City officials reported that they were not used by outside residents to any great extent.

TABLE 11

SACRAMENTO COUNTY
TOTAL AND PER CAPITA EXPENDITURES FOR SACRAMENTO COUNTY AND SELECTED COUNTIES OF COMPARABLE SIZE
1951-52

	Expenditures	
County	*Total amount*	*Per capita amount*
SACRAMENTO	$20,265,424	$73.12
Kern	23,969,230	104.98
Fresno	27,265,380	98.60
San Joaquin	16,711,495	83.25
San Bernardino	22,883,427	81.25
Orange	16,854,297	77.95
Santa Clara	21,754,697	74.87
Contra Costa	19,425,648	64.97
San Mateo	12,668,474	53.76

SOURCE: Population data from Table 1 and expenditure data from the various county budgets.

COUNTY SERVICES

County Expenditures and Revenues

In 1951-52, the budget of Sacramento County provided for total expenditures in the amount of $23,969,230. Table 11 presents some comparisons of Sacramento County's budget with the budgets of some other counties studied in this report, and with some additional counties of similar size. In per capita expenditures, the county ranked seventh, with only Contra Costa and San Mateo Counties showing smaller amounts.

Table 12 shows the budgeted expenditures of Sacramento County in fiscal 1952, by general function. The first column presents the amounts actually budgeted, while the third column shows amounts spent on various functions adjusted to make the functional classifications comparable as between the counties studied herein. Table 1 of Appendix B provides detailed data with respect to each budget category. Only three categories of expenditure exceed 5 percent of the total county budget. These are charities and corrections (including the categorical aid programs), 59.8 percent; roads and bridges, 16.3 percent; and general government, 8.5 percent. Figure 5 shows the distribution of county expenditures among various functions and the distribution of county revenues by source for the Fiscal Year 1951-52.

The revenues and balances budgeted to meet these expenditures are shown in Table 13. The largest share of county receipts derived from state and federal subventions or grants. Over 50 percent of total revenues was budgeted in 1951-52 from this source. Ad valorem taxes on property ranked second, producing 31.9 percent of the anticipated revenues. Balances in funds provided 11.6 percent, and the remainder (5.3 percent) was budgeted from administrative receipts.

TABLE 12

SACRAMENTO COUNTY

COUNTY EXPENDITURES BY GENERAL FUNCTION

1951-52

	Expenditures			
General function	*Budget amounts*	*Percent of total*	*Adjusted budget amounts*[a]	*Percent of total*
General government	$1,425,811	7.0	$1,730,521	8.5
Protection to persons and property	948,902	4.7	948,902	4.7
Health and sanitation	717,628	3.5	717,628	3.5
Roads and bridges	3,306,387	16.3	3,306,387	16.3
Recreation	22,940	0.1	22,940	0.1
Charities and corrections	12,121,142	59.8	12,121,142	59.8
Education	227,955	1.1	227,955	1.1
Interest and debt retirement	None	---	None	---
Reserve funds	356,949	1.8	356,949	1.8
Miscellaneous	1,137,710	5.6	833,000[b]	4.1
Total	$20,265,424	100.0	$20,265,424	100.0

NOTES:

[a] Adjusted to a standard functional classification adopted in this study for purposes of making intercounty comparisons.

[b] This amount is for construction purposes.

SOURCE: "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento.

TABLE 13

SACRAMENTO COUNTY

COUNTY REVENUES AND BALANCES

1951-52

Source	*Amount*	*Percent of total*
Property taxes	$6,456,249	31.9
Basic county-wide ad valorem tax	5,923,622	29.2
Library tax, not levied in the City of Sacramento	78,375	0.4
Road tax, outside cities	304,162	1.5
Recreation tax, outside cities	22,940	0.1
Levies of previous years	124,150	0.6
Mandatory special taxes	3,000	[a]
Subventions and grants	10,376,555	51.2
State	6,940,726	34.2
Federal	3,435,829	17.0
Administrative receipts	1,079,448	5.3
Licenses and permits	114,100	0.6
Fines and penalties	211,600	1.0
Privileges	15,000	0.1
Fees and commissions	276,600	1.4
Rent, interest and sales	47,220	0.2
Special services	138,200	0.7
Intergovernmental services	250,928	1.2
Miscellaneous	25,800	0.1
Available balances	$2,353,172	11.6
Total	$20,265,424	100.0

NOTE: [a] Less than one-tenth of 1 percent.

SOURCE: "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento.

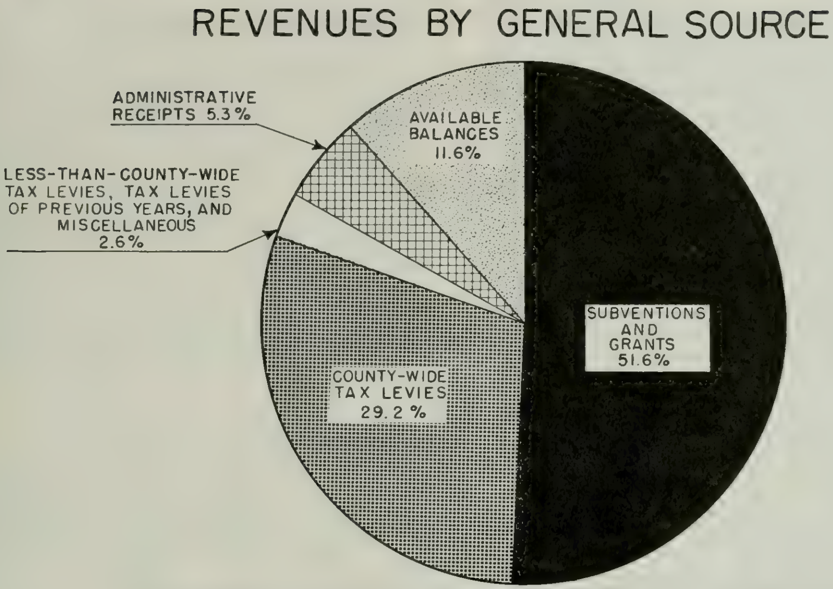
An approximate distribution of ad valorem tax payments by property owners living in various areas of the county is shown below. This distribution is made on the basis of the proportion of the total county tax base located in the particular areas.

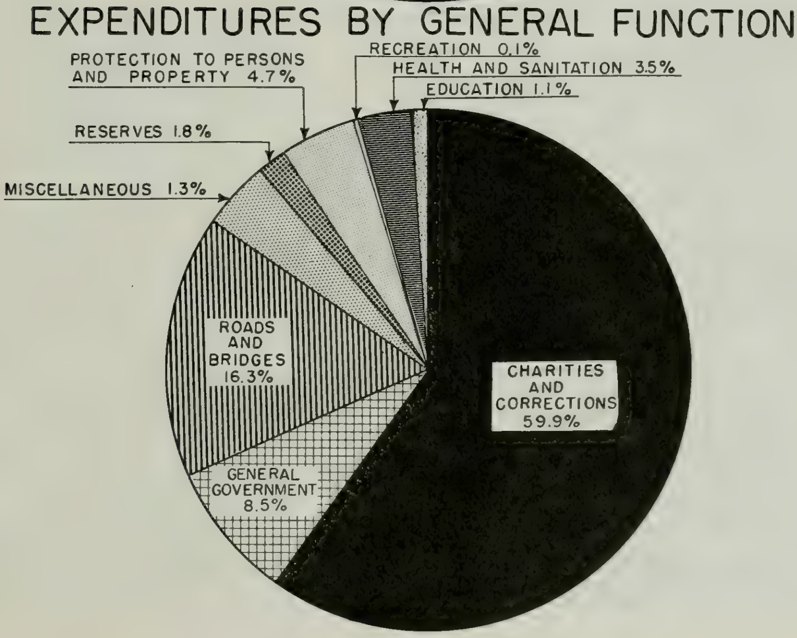
Area	*1950 population as a percentage of county total*	*1951-52 assessed valuation as a percentage of county total*	*Estimated share of current county property taxes*
Incorporated			
Sacramento	49.6	54.9	$3,252,100
North Sacramento	2.2	2.0	118,400
Isleton	0.6	0.4	23,700
Folsom	0.6	0.4	23,700
Galt	0.5	0.3	17,800
Total incorporated	53.5	58.0	$3,435,700
Unincorporated			
Urban	27.1	19.3	$1,143,200
Rural	19.4	22.7	1,344,700
Total unincorporated	46.5	42.0	$2,487,900
Total county	100.0	100.0	$5,923,600

City residents, who constituted 53.5 percent of the total county population in 1950, paid 58.0 percent of current ad valorem levies, or $3,435,700. Taxpayers in urban unincorporated areas, or 27.1 percent of the county population in 1950, paid 19.3 percent of the property tax load, or $1,143,200. Rural taxpayers, who constituted 19.4 percent of the population in 1950, paid 22.7 percent of the property tax revenues, or $1,344,700 in fiscal 1952.

All county taxpayers, except those residing in the City of Sacramento, also paid a county library tax of

FIGURE 5
SACRAMENTO COUNTY
DISTRIBUTION OF REVENUES AND EXPENDITURES
1951-52





$0.06 per $100 of the 1950 assessed valuation. For this reason, the library tax revenues are estimated by area below.

	Estimated amount	*Percent of total*
Paid by city residents, excluding Sacramento city	$5,400	6.9
Paid by residents of urban unincorporated areas	30,400	38.8
Paid by residents of rural unincorporated areas	42,600	54.3
Total	$78,400	100.0

Subventions and grants accounted for 51.2 percent of Sacramento County's budgeted revenues in 1951-52. Almost exactly half of the total revenue of $10,376,555 under this heading derives from federal grants, and is obviously not traceable to local taxpayer sources. Of the remainder, almost all are from state funds too diverse in origin to permit analysis of local contributions thereto. Three items, however, can be analyzed with reasonable accuracy. These are the payments to the county in connection with state taxation of motor vehicle fuels, motor vehicles, and licensing of liquor establishments.

For fiscal 1952, Sacramento County's budget listed the following amounts:

Subvention	*Amount*
Motor Vehicle Fund and Motor Vehicle Fuel Tax Fund	$1,223,836
Motor Vehicle License Fee Fund (in lieu tax)	691,856
Alcoholic beverage license fees	50,000

If it is assumed that the 1950 population distribution is an acceptable basis for estimating the sources of the state subventions from the motor vehicle fuel tax and the in-lieu tax, then it may be estimated that residents of cities contributed about $1,024,900, or 53.5 percent of the total of motor vehicle subventions received from the State. Since liquor license fees are subvened on the basis of collections in various areas, the entire amount of this subvention to the county may be considered as deriving from licenses in unincorporated areas only.

Table 14 presents a distribution of county revenues which are considered to be traceable by groups of tax-

TABLE 14

SACRAMENTO COUNTY

TRACEABLE COUNTY REVENUE ITEMS, FUNDS TO WHICH ALLOCATED, AND AMOUNTS ESTIMATED AS PAID BY CITY AND NONCITY RESIDENTS

1951-52

		Traceable revenues as a percentage of:			*Traceable revenues estimated as paid by city residents*		*Traceable revenues estimated as paid by noncity residents*	
Traceable revenue items and funds to which allocated	*Traceable current revenues*	*Total revenues and balances*	*Revenue item*	*Current fund requirement*	*Amount*[a]	*Percent of fund requirement*	*Amount*[a]	*Percent of fund requirement*
County-wide property taxes								
General Fund	$3,739,404	18.4	63.2	59.9	$2,169,000	34.7	$1,570,000	25.1
Welfare and Security Fund	860,056	4.2	14.6	10.4	498,800	6.0	361,300	4.4
Capital Construction Fund	611,341	3.0	10.4	73.4	354,600	42.6	256,700	30.8
Weimar Sanitarium Fund	340,062	1.7	5.7	57.2	197,200	33.2	142,900	24.0
Unappropriated Reserve Fund	156,249	0.8	2.6	43.8	90,600	25.4	65,600	18.4
Advertising Fund	66,855	0.3	1.1	96.1	38,800	55.8	28,100	40.3
State Institutions Fund	50,330	0.2	0.8	79.4	29,200	46.1	21,100	33.3
Special Public Health Fund	38,313	0.2	0.6	32.4	22,200	18.8	16,100	13.6
Other	61,012	0.3	1.0	25.2	35,400	14.6	25,600	10.6
Total—County-wide property taxes	$5,923,622	29.2	100.0	35.2	$3,435.800	20.4	$2.487.400	14.8
Less-than-county-wide property taxes								
Library Tax—to County Library Fund	$78,375	0.4	100.0	81.8	$5,400	5.6	$73,000	76.2
Road District Tax—to County Roads Fund	304,162	1.5	100.0	51.6	---	--	304,162	51.6
Recreation Tax—to County Recreation Fund	22,940	0.1	100.0	100.0	---	--	22,940	100.0
Total—Less-than-county-wide property taxes	$405,477	2.0			$5,400		$400,102	
Subventions								
General Fund (In Lieu Tax)	$691,856	3.4	100.0	11.1	$370,100	5.9	$321,800	5.2
General Fund (Alcoholic Beverage Control Licenses)	50,000	0.2	100.0	0.8	---	--	50,000	0.8
Special Road Improvement Fund (Motor Vehicle Fuel Tax)	1,223,836	6.0	100.0	44.7	654,800	23.9	569,000	20.8
Total—Subventions	$1,965,692	9.7	--	21.9	$1,024,900	11.4	$940,800	10.5
Total traceable revenues	$8,294,791	40.9	100.0	40.9	$4,466,100	22.0	$3.828,302	18.9
Percent of traceable revenues	100.0				53.8		46.2	

NOTE: [a] Allocations credited to city and noncity residents from ad valorem revenues were computed on the basis that 58 percent of the 1951-52 assessed valuations was inside incorporated cities; from subventions, on the basis that 53.5 percent of the 1950 population was inside incorporated cities; the Alcoholic Beverage Control subvention is entirely credited to unincorporated areas. Totals may not add due to rounding.

SOURCE: "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento.

payers in particular locations, and by county fund. Approximately 8 million dollars, or 41 percent, of the total revenues of 20 million dollars contained in the 1951-52 budget are deemed to be traceable. Of this total of more than 8 million dollars, $4,466,100, or 53.8 percent, is considered as paid by city residents and $3,828,302, or 46.2 percent, is considered as the share paid by noncity residents.

Table 15 carries this analysis a step further and shows the amounts required by each of several county funds; the amounts of the revenues of these funds traceable to city and noncity residents; and the amount in each fund dollar traceable to city and noncity residents. In the general fund, 71.8 cents of each dollar may be traced as to revenue source. Of this amount 40.7 cents is estimated as paid by city residents, as against 31.1 cents estimated as paid by the residents of unincorporated areas. Of each special road improvement fund dollar, 44.7 cents is traceable—23.9 percent being credited to city residents and 20.8 percent being credited to unincorporated area residents. Only one-third of each public health fund dollar is traceable, and of this amount 18.8 percent is credited to city residents, while 13.6 percent is estimated as paid by noncity residents.

Services Provided by Sacramento County

In the following sections certain selected services provided by Sacramento County are examined. The sections are listed by general budget classifications, but within each section only the particular services selected for study in this report are analyzed in detail.

Sacramento County is one of California's 10 charter counties. Other than with respect to certain organizational features, the charter, however, does not materially change the activities of this county from those of the general law counties. Where the charter does contain provisions making changes important to the following analyses, these differences are noted in connection with the particular service concerned.

Figure 6 is presented to serve as a guide for subsequent discussions relating to the distribution of services throughout the county. It shows the supervisorial district organization of the county and along with Figures 3 and 4 above shows the locations of many of the areas important to this discussion. Half of District No. 1 lies in the City of Sacramento while Districts Nos. 2 and 3 are entirely inside the city. Districts 4 and 5 are largely rural in character. Thus, city representation on the board of supervisors is unusually large.

General Government Services. County services in this general category amounted to $1,425,811 in 1951-52, or 7 percent of total county expenditures. Revenues related to these services, such as fees collected by the county clerk and the like, amounted to $202,650, so that the net expenditures of concern here may be estimated at $1,223,161. Expenditures for, and the revenues related to, each specific service item under general government are shown in detail in Table 1, Appendix B. Many of the items included in this general group of county services are, of course, in the nature of overhead and their costs should therefore be distributed among the county activities they serve. The civil service board is a case in point. The budgeted expenditures for civil service amounted to $17,317, and undoubtedly a significant share of this amount would be used to assist other county departments, such as the library, the roads and bridges department, etc. These specific items of concern in this budget classification are discussed below, viz., the board of supervisors, the planning commission and the building inspector.

THE BOARD OF SUPERVISORS. The board of supervisors' budget amounted to $20,042 for this fiscal year. It might of course be argued that this item of county expense should be borne by the residents of unincorporated areas, since the board acts in a legislative and executive capacity only for these people. It is, however, extremely unlikely that the budget of the board would be any lower if it confined its activities to matters of concern only to the unincorporated areas. Moreover, most actions of the board relating to general county matters are of as much concern to city residents as to noncity residents. Hence county expenditures for this item of general government seem unquestionably to be of benefit to the entire county.

THE PLANNING COMMISSION. A total of $21,772 from the county general fund was budgeted for the planning commission. On the basis of the analysis of traceable revenues set forth in Table 14, it may be estimated that city residents contribute almost $8,900 to this service. In Sacramento County, Folsom and Isleton are the only cities which do not have planning commissions. The City of Sacramento budgeted $39,713 for this function but Galt and North Sacramento budgeted only very small amounts. County officials report that

TABLE 15

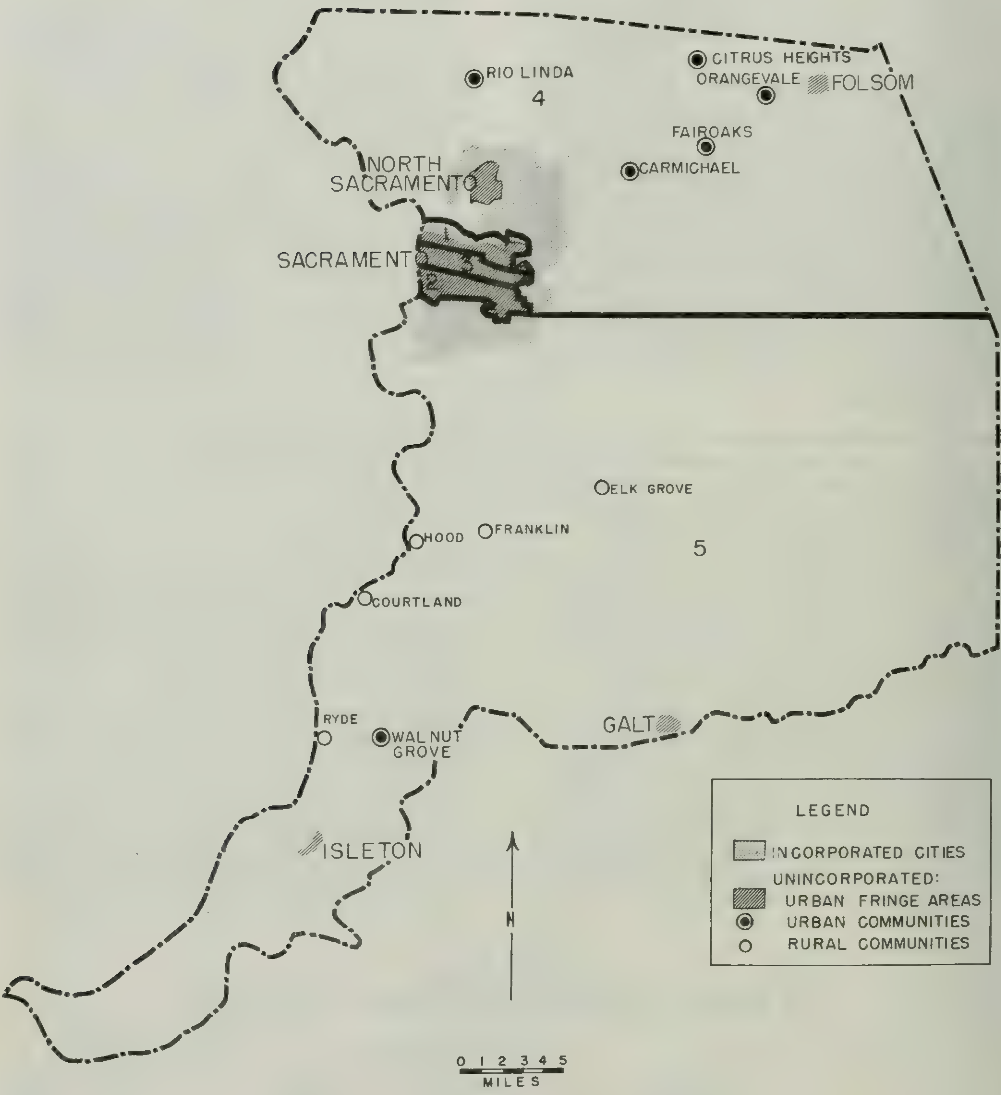
SACRAMENTO COUNTY
TOTAL REQUIREMENTS AND ESTIMATED TRACEABLE AMOUNTS OF SELECTED FUNDS
1951-52

		Estimated traceable amounts			*Estimated traceable amounts in cents per fund dollar*		
Fund	*Total current fund requirements*	*Total*	*Credited to city residents*	*Credited to noncity residents*	*Total*	*Credited to city residents*	*Credited to noncity residents*
General fund	$6,241,438	$4,480,900	$2,539,100	$1,941,800	71.8	40.7	31.1
Special public health fund	118,266	38,300	22,200	16,100	32.4	18.8	13.6
Special road improvement fund	2,739,600	1,223,800	654,800	569,000	44.7	23.9	20.8

SOURCE: "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento, and data in Table 13.

FIGURE 6

SACRAMENTO COUNTY
SUPERVISORIAL DISTRICTS



the county planning commission does not perform any planning functions inside cities. Thus, it is apparent that city residents contribute $8,900 in support of this county service but get no share of it. In fact, these cities provide their own planning functions in addition to paying a share of the cost of county planning.

With respect to the planning work performed in the unincorporated areas of Sacramento County, the commission's policy has been one of considering problems on the basis of need, without favoring any particular area with large amounts or higher levels of planning service. The adoption of this policy has caused the planning agency to devote most of its time and effort to matters relating to urban unincorporated areas, where major planning problems more frequently arise. For example, four zoning units were established in September, 1950, in the heavily-settled areas northeast of Sacramento City, and similar units are being prepared for other urban-type areas. Despite this concentration of service, however, the planning commission is willing to deal with any planning problems which may arise in rural areas as well.

THE BUILDING INSPECTOR. General funds in the amount of $45,715 were budgeted to finance the activities of the county building inspector's office. Charges made for building permits and associated inspection, however, were expected to produce $60,200 in revenues, or more than enough to meet the expense of this county function. The county inspector provides building inspection only in the unincorporated areas of the county. In view of the revenues mentioned as collected for this service, however, there are obviously no questions with respect to equity raised here.

Protection to Persons and Property. In 1951-52, budgeted expenditures for services in this general classification of county expenditures were $948,902, or about 5 percent of total budgeted expenditures. It was estimated that revenues associated with certain of these services (e.g., recorder's fees) would amount to $214,250. Thus the net expenditures examined here would amount to $724,652. Of the 18 specific services included in this general category, only those relating to the sheriff, constables and humane services are discussed in the following section.[1]

Other services relating to protection are considered to be of county-wide benefit. The county jail and road camps are aspects of the administration of justice essential to all county residents. The recorder, the sealer of weights and measures, the agricultural commissioner, the livestock inspector and the civil defense department provide services which are county-wide in importance, and little argument can be raised concerning their county-wide importance.

LAW ENFORCEMENT. The major law enforcement agency in the county is the sheriff's department. In Sacramento County, the charter (Article XV, Section 69) provides for the appointment of constables by the county executive, and these constables are under the direction of the sheriff, in contrast to general law counties, where constables are elected officials. The budgeted expenditures of the sheriff's department amounted to $333,605 in 1951-52. Revenues collected from fees for serving civil action papers and from charges to fire districts for use of the sheriff's radio amounted to $9,400. Hence the net expenditure for this service may be estimated at $324,205. If the percentage figures set forth in Table 14 above estimating traceable amount of revenue by funds are applied to this net figure, the share of the net expenditures figure which may be estimated as paid by city residents is approximately $132,000.

The sheriff is charged with the general responsibility of preserving the peace and enforcing the laws. In addition to the activities required to fulfill these responsibilities, he also manages the county jail and road camps; enforces court orders; serves civil writs; and supplies officers for the courts. To carry out these duties, the sheriff's department employed the following personnel in its various divisions:

Administration	8
Records, identification and communication	9
Transportation	2
Civil	5
Bailiffs	5
Jail and road camps	18
Vacation relief	4
Investigation	4
Criminal (including two men for vacation relief)	29
Total	82

The assignments of personnel to these various functions are not fixed; deputies are shifted to meet workload requirements. However, the above list does indicate the usual assignment of personnel among these divisions. All of the operations of the department are directed from central headquarters in the county jail in the City of Sacramento; no substations are maintained.

Many of the sheriff's functions are of a county-wide nature. The transportation division transports county charges and prisoners regardless of intracounty jurisdictions; the civil division serves all warrants, summonses and liens for the courts in civil cases; the bailiffs attend the county courts; and the jail and road camps are used for all county prisoners. These activities require a total of 34 deputies (including vacation relief), or about 35 percent of the entire staff. About the same proportion of the administrative division is needed to organize county-wide operations, adding three more men, and making a total of 37. On the basis of these personnel assignments, it may then be estimated that approximately $146,000 of the total expenditure of $324,205 is allocable to county-wide operations and the balance, or $178,205, supports less-than-county-wide operations.

The actual law enforcement activities conducted by the sheriff are performed almost exclusively in the unincorporated areas. However, the cities of Folsom, Galt and Isleton receive assistance from the sheriff in criminal investigations, on requests they initiate. Such assistance was requested and supplied by the sheriff without charge, about 20 times during 1951. The same cities rely on the sheriff's department for identification and records work, and the Isleton police car is connected with the sheriff's radio. These services are provided free to these cities. Furthermore, all city warrants issued against outside residents who have violated city ordinances are served for cities by the sheriff without charge.

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[1] See Appendix B, Table 1, for a detailed list of these services.

The general policy followed by the sheriff has been one of not answering calls received directly from city residents. These calls are turned over to the city police department. This policy has received the support of the cities.

The 29 deputies in the criminal division and the four deputies in the investigation division are assigned throughout the county on the schedule shown below.

Shifts	*Assigned units and functions*	*Route or Area*
Call duty		
7.30 a.m. to 4.00 p.m.	1 car, 2 deputies, on call duty patrol	Circuit through the urban areas of the county; no precise route followed
9.00 a.m. to 5.30 p.m.	1 car, 2 deputies, on call duty from headquarters	Wherever called.
4.00 p.m. to 12.00 p.m.	2 cars, 4 deputies, on call duty patrol	Car No. 1—North of Sacramento Car No. 2—South of Sacramento
7.30 p.m. to 3.00 p.m.	2 cars, 4 deputies, on call duty patrol	North of Sacramento
12.00 p.m. to 8.00 a.m.	2 cars, 4 deputies, on call duty patrol	Car No. 1—North of Sacramento Car No. 2—South of Sacramento
Investigation duty		
7.30 a.m. to 4.30 p.m.	1 car, 2 deputies, on follow-up investigations	Wherever assigned
8.00 a.m. to 5.00 p.m.	1 car, 2 deputies, on follow-up investigations	Wherever assigned

Except for assistance rendered when requested by the police in Folsom, Isleton and Galt, and for rather infrequent exchange of county-city law enforcement services under the prevailing mutual aid arrangements, the sheriff's criminal and investigation divisions operate entirely in the unincorporated areas. Expenditures for these two divisions amounted to $178,205. Since these expenditures are met from the general fund and since, as shown in Table 14 above, city residents directly contribute about 40.7 cents of every general fund dollar, the amount which city residents paid in support of this service may be estimated at $72,500.

Constables in Sacramento County spend the major portion of their time on civil duties such as process serving. Under the general law, however, they are required to enforce the laws and maintain the peace in the same way as the sheriff is required to perform these functions. Each of the seven townships in Sacramento County has a constable whose chief function is to serve as a bailiff in the justice court. While no estimate of time spent on general law enforcement by these constables is available, reports from the sheriff's department indicate that it is very slight. The net county expenditure for these officers amounted to $23,145 in 1951-52. Of this amount, $17,855 was budgeted for the seven constables in the county. The balance, $5,290, was budgeted for four deputy constables who are appointed by the sheriff. These deputies provide night patrol protection in four unincorporated areas, viz., Carmichael, Fair Oaks, Del Paso Heights and Walnut Grove. Their salaries are supplemented by contributions from local merchants and others in these areas. It is estimated that city residents contributed about $2,150 of the total amount of $5,290 spent by the county for this service.

A note on the level of police protection furnished to the residents of the unincorporated areas of Sacramento County is important here for appraising the extent to which city residents might be "subsidizing" extra measures of county service in unincorporated areas. It should be noted that the duties of city police and the sheriff's deputies differ considerably. City police devote considerable time to traffic control, a function not performed by the sheriff. On the other hand, the sheriff supplies bailiffs and renders police services inside certain cities.

The following tabulation provides a comparison of law enforcement activities in cities with those undertaken by the county.

	Unit	
	County	*All cities*
Total personnel (1951-52)	93	274
Population served (1950)	128,919	148,221
Personnel per 1,000 population	.72	1.85
Budgeted expenditures, 1951-52	$357,650	$1,068,918
Per capita expenditures	3.32	7.21

County personnel and expenditures include constables as well as the personnel of the sheriff's department. While completely valid conclusions with respect to the levels of police protection in cities and in the county cannot, of course, be drawn from these measures, the data indicate that the county level of service is much lower than the city level.

A second question relates to the level of county police protection provided by the sheriff in the urban and rural areas of the unincorporated part of the county. The sheriff's department considers the number of deputies now in service inadequate for carrying out both criminal and investigative functions. The department reports that, to bring the level of law enforcement in the unincorporated urban areas up to the standard prevailing in the rural districts, would require the addition of three two-man cars, one each in the areas lying north, northeast and south of the city of Sacramento; and two investigation cars, one for the day and one for the night shift. A check of the sheriff's desk log for the month of January, 1952, described as a typical month, showed the following:

	Location	
	Urban areas	*Rural areas*
Estimated population 1950	73,000	56,000
Responses to calls		
Number	386	48
Responses per 1,000 persons	5.3	.9
Investigations		
Number	58	2
Investigations per 1,000 persons	.8	.04

These figures suggest that the urban areas were receiving a higher level of law enforcement than rural areas. However, the figures reveal nothing as to how often responses to urban calls are delayed because of an overloaded staff, and thus they may overstate the protection actually provided therein.

HUMANE SERVICE AND COUNTY POUND. General funds totaling $21,299 were budgeted for animal control services, including $20,099 for the county pound and $1,200 for contractual animal pickup and disposal services performed by the Humane Society. The county pound requires the services of one poundmaster, five full-time poundmen and a moderate amount of extra help.

Animal control operations are carried out in the entire county, except for the Cities of Sacramento and Galt. These cities provide in their local budgets for animal control, and in fiscal 1952 they budgeted $14,976 and $365 respectively for this service. The county health director estimates that 50 percent of the county pound's activities result from service provided to the City of North Sacramento, while Folsom and Isleton each require about one full day of service per month. No charges are made to the cities served.

Since the residents of Galt and Sacramento do not receive this service from the county, some question might be raised with respect to their contribution through county property taxes in support of it. Expenditures from the general fund for pound service amounted to $21,299 in Fiscal 1952. Of this amount, $15,300, or 71.8 percent, of the revenues required may be traced to taxpayers in different areas. On the basis of the assessed valuations of these two cities, it may be estimated that residents of the City of Sacramento paid $8,290 (54.2 percent) in support of this less than county-wide service, while residents of the City of Galt paid about $50 (0.2 percent) in support of it.

Health and Sanitation. The sum of $118,266 was budgeted for the county health department in 1951-52. Revenues to be collected from services provided by the department are shown below. The net expenditures of concern to this analysis hence amounted to $99,416.

Permit fees for septic tanks and garbage collection	$4,100
Contract payments from all school districts, except Sacramento Unified, for health services	8,750
Payment by City of Sacramento of one-half the salary of the county health officer for city work	6,000
Total	$18,850

All health department operations are financed from a special public health fund, almost half of which derives from federal and state subventions and grants. As was shown in Table 14 above, about 19 cents in each health fund dollar can be directly traced to residents of cities in Sacramento County. Thus it may be estimated that the share of city residents in this expenditure amounted to $22,200.

The county's health department employed 56 persons and provided health services everywhere in the county except inside the City of Sacramento. Not only does the county health department render health services on the basis of need everywhere in the county, including all of the cities except Sacramento, but it also enforces local health ordinances for cities without charge. The county health officer estimated that 20 percent of the department's time was spent on matters relating to services inside cities. Residents of the City of Sacramento contribute toward these operations of the county health department, but they derive no direct benefits therefrom. On the basis of the proportion of county assessed valuations in the City of Sacramento, it may be estimated that the residents of this city paid approximately $21,000 of the property tax revenues apportioned to the special public health fund.

All residents of the county except those of the City of Sacramento may use the two county dumps without charge. These county-maintained dumps are situated north and south of the City of Sacramento and involve an expenditure of $500 budgeted from the general fund, to cover the occasional leveling of the dump surface. Using the proportion of the county tax base inside the City of Sacramento, it may be estimated that the taxpayers of that city directly contributed about $170 toward the operation of these two county dumps, a service of no benefit to them.

Highways and Bridges. Expenditures for roads and bridges were second largest in the budget for 1951-52. Total expenditures amounted to $3,306,387, or approximately 16 percent of all budgeted expenditures.[2] Expenditures for this county function were made from the special road improvement fund and from the county road fund. Sacramento County performs no road or street work inside cities either directly or under contract, nor does it provide cities with any county money for this purpose. No county road equipment is loaned or rented to cities.

The special road improvement fund is used entirely for construction and maintenance on the primary road system of the county. The sources of receipts for this fund are shown below for Fiscal 1952.

Unencumbered balance	$1,227,364
State grant (Chapter 20)	226,560
State subvention (motor fuels tax)	1,223,836
Intergovernment revenues	1,400
County interdepartmental charges	60,000
Miscellaneous fees	440
Totals	$2,739,600

It should be noted that no revenues from the state subvention of the motor vehicle license (in lieu) tax are placed in the special road improvement fund. Sacramento County places receipts from this subvention entirely in the general fund. Prior to 1948, in lieu tax subventions were, however, placed in the special road improvement fund, to assist in amortizing the county road bond issues of 1917 and 1920. It should also be noted that no revenues from the general county property tax are allocated to this fund.

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[2] See Appendix B, Table 1, for a detailed list of services included in this budget category.

The county road fund depends largely upon revenues derived from property taxes for road purposes levied on taxpayers in the unincorporated area of the county. While the special road improvement fund is used on the primary road system, the county road fund is used exclusively to construct and maintain secondary roads. The sources of the receipts of this fund in 1951-52 are shown below.

Unencumbered balances	$106,825
County traffic fines	150,000
Prior year's tax levies	5,800
Current ad valorem tax outside cities ($0.25 per $100 of assessed valuation)	304,162
Total	$566,787

While no problem exists with respect to this aspect of county road service as far as city residents are concerned, there are certain matters relating to road service in the rural and urban unincorporated areas which are of some concern. The following tabulation shows the mileage of secondary roads in these two areas and the expenditures made for road service in the rural and urban parts of the unincorporated territory of the county.

	Urban secondary	*Rural secondary*	*Totals*
Maintained mileage	224.9	623.8	848.7
Expenditures, 1950-51			
Maintenance	$100,607	$210,490	$311,097
Construction	$10,196	$36,107	$46,303
Total	$110,803	$246,597	$357,400
Percent of total expenditures	31	69	100
Average expenditure per mile	$493	$395	$421

The county engineer reported that 99 percent of the urban secondary roads have been and are constructed by subdividers or contractors.[3] They are accepted and maintained by the county as part of the county road system if they meet county standards.[4] If the subdivider so requests, the county will put in subdivision streets on a special assessment basis. The amounts shown under "construction" in the above table actually refer to *re*construction of existing roads and and streets. No new construction is budgeted.

An important point with respect to expenditures is whether all the roads and streets involved are part of the basic county network of highway transportation and therefore provide the same amount of transportation service in all of the unincorporated areas. According to estimates of the county engineer, about 60 percent of the urban secondary road system is of a "local access" nature; i.e., used principally for transportation in and out of urban residential areas. The remaining 40 percent are considered as serving through traffic. This being the case, it seems that the needs of urban residents are being met more fully than those of rural residents, who must install private access roads to connect with the county primary or rural secondary road system. If this estimate of 60 percent of secondary roads being of an "access nature" is accepted, then of the total expenditure of $110,803 in Fiscal 1951 on urban secondary roads, 60 percent, or $66,480, of this amount can be estimated as spent on roads of principal benefit to the residents of unincorporated urban areas.

For 1951-52, secondary road expenditures were budgeted at $566,787. It may be estimated that $9,222 may be added as the share of administrative overhead properly chargeable to this program. Thus total expenditures may be estimated at $576,009. Almost 31 percent of this amount ($178,563) may be allocated as expenditures on urban secondary roads. Assuming that 60 percent of this amount is spent for private local access roads, then unincorporated urban residents are receiving extra road service in the amount of $107,138. Of this amount, of course, urban residents contribute a share. If their share is measured by the proportion that the assessed valuation of the urban unincorporated areas bears to the total unincorporated area assessed valuation of the county (41.7 percent), then $44,677 of the total figure of $107,138 may be accepted as the amount of their contribution. The balance, $62,461, thus represents the cost of this "extra" service provided to unincorporated urban areas.

As to lighting, the county does not provide or maintain such service on county roads. It does, however, install overhead lights at intersections for safety purposes. This service is provided from either the county road fund or the special road improvement fund, depending upon whether the lighting is placed on primary or secondary roads. The county has also installed three traffic signals and has proposed five additional ones to be undertaken jointly with the State. These services are also met from either the county road fund or the special road improvement fund, depending upon the location of the signal.

The roads and bridges department also performs some engineering, maintenance, and operation of functions for five sanitation and two drainage districts. The county bills these districts for such services on a time and material basis.

Recreation and Parks. Less than one-tenth of 1 percent of the 1951-52 budget was allocated to recreational purposes. A total amount of $22,940 was budgeted. This expenditure is entirely met from the recreation fund. To provide this service, a property tax rate of $0.02 per $100 of assessed valuation is levied in the unincorporated areas only.

Sacramento County undertakes limited recreational activities, but these are provided only outside cities. The sum of $1,500 was budgeted to cover the county's share of maintenance costs for Del Paso Park, which is jointly maintained with the City of Sacramento. The remainder of the fund is evenly divided between the fourth and fifth supervisorial districts, to assist in the creation and operation of recreational facilities as they are needed. So far only one item has been definitely decided upon—a $3,000 baseball park located in the Pacific School District.

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[3] This proportion applies to urban secondary streets built since 1940, when the county enacted a subdivision ordinance requiring streets to be put in by the subdivider. Before that date, the county frequently constructed and paid for such streets.

[4] County standards for acceptance of newly dedicated roads and streets are: 32-foot width; 4-inch crushed-rock base; 2-inch asphaltic concrete top. There are some privately built roads and streets which have not been accepted because they did not meet these standards.

Education. The only item in the education classification that requires discussion is the county library. For 1951-52, county expenditures for library purposes were budgeted at $100,649. Of this amount, $96,000 derived from the county library fund, and the balance of approximately $10,000 derived from the general fund.

The county free library system serves the unincorporated area and all cities except the City of Sacramento, which maintains its own library. Branches are operated in the cities of North Sacramento, Galt, Folsom, and Isleton, as well as in the unincorporated communities of Elk Grove, Courtland, Walnut Grove, Fair Oaks, Carmichael, Rio Linda, and Del Paso Heights. In addition, 20 branches serve the more rural areas.

Until September 1950, the county library provided books to all school districts except the Sacramento Unified School District. Since that date, this function has been transferred to the office of the superintendent of schools.

Except for the county librarian's salary of $4,824, which is paid from the general fund, expenditures of the library program are entirely met from revenues derived from the tax of $0.06 per $100 of assessed valuation levied everywhere in the county, except inside the City of Sacramento.

Charities, Hospitals and Corrections. The various welfare, hospital, detention, and probation services included in this general budget category accounted for nearly 60 percent of all outlays budgeted for 1951-52.[5] About two-thirds of the 12.1 million dollars in combined expenditures were financed from the county's three welfare and security funds, while the balance was drawn from the general fund. The largest items of expenditure in this classification are the categorial aid programs, a large share of which are financed by federal and state subventions. The county hospital and emergency ambulance service are the functions of particular concern to this study. Net expenditures for the operation of the county hospital amounted to approximately $2,638,000, all from the general fund.

On November 4, 1951, hospital officials made a patient count and classified patients according to place of residence. The total patient count was 1,092, with residence addresses being obtainable for all but 51. The remaining 1,041 patients were classified by type of county service rendered and location of residence. These classifications of patients are shown in the tabulation below. For all types of medical services, 64.3 percent of the patients came from cities, 18.4 percent from urban unincorporated areas, 13.4 percent from rural unincorporated areas and 3.9 percent from outside the county. If only the 1,000 patients from within Sacramento County are considered, the relative distribution of patients by place of residence shows that 66.9 percent were from cities; 19.2 percent were from unincorporated urban areas; and 13.9 percent were from rural areas.

		Patients from cities		*Patients from unincorporated urban areas*		*Patients from rural areas*		*Patients from outside the county*	
Hospital unit	*Total number of patients*	*Number*	*Percent of total*	*Number*	*Percent of total*	*Number*	*Percent of total*	*Number*	*Percent of total*
County hospital	486	282	58.0	106	21.6	70	14.4	28	5.8
Women's cottage	79	57	72.1	12	15.2	10	12.7	---	---
Home for the aged	114	90	78.9	14	12.3	9	7.9	1	0.9
Tuberculosis sanatorium	114	87	76.3	10	8.8	12	10.5	5	4.4
Out-patient clinic	248	153	61.7	50	20.2	38	15.3	7	2.8
Total	1,041	669		192		139		41	
Percentage	100.0		64.3		18.4		13.4		3.9

As has already been mentioned, hospital expenditures are met from the county general fund. Cities, whose residents contribute an amount equal to about 41 percent of these expenditures, supply 67 percent of the hospital patient-load. Noncity residents, contributing an amount equal to 31 percent of hospital outlays, supply about 32 percent of the patient-load.

Ambulance service is also provided by the county. Emergency pickups are made anywhere in the county. The ambulance, however, operates from the hospital, and its runs are almost entirely within the Sacramento metropolitan area. Elsewhere in the county, private ambulances are used, and the county bears the expense. Of a total number of 3,012 trips made between July 1951 and April 1952, 1,744, or 57.9 percent, were responses to calls inside the City of Sacramento. The remaining calls were those answered in the unincorporated areas around Sacramento and North Sacramento.

Miscellaneous Budget Items

Items under this budget heading constitute the balance of the outlays budgeted for 1951-52. These six items are listed below.

Advertising county resources	$69,555
Fairs and exhibits	4,500
Rebates and refunds	6,585
Employees retirement	221,670
Airports	2,400
County construction	833,000
Total	$1,137,710

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[5] See Appendix B, Table 1, for a detailed list of services included in this budget category.

The first four items are obviously of county-wide importance. However, the last two items merit review in order to determine the extent to which they are made available throughout the county.

Only $2,400 was appropriated for the county-owned airport, which is used solely as an emergency landing field. Furthermore, half of the amount budgeted was met from a state subvention to be used for capital outlay at the airport. Three-fourths of the $833,000 budgeted for capital construction derived from current county-wide ad valorem taxes, and the remainder derived from an unexpended balance. Of this total amount for construction, $756,155 was for county hospital construction; $14,343 for a coroner's building; and $28,514 for miscellaneous county buildings. The balance of $33,988 was to be used for acquiring property at Seventh and H Streets in the City of Sacramento, for a new county courthouse. About two-fifths of the required area has been purchased so far, under a regular yearly acquisition plan. Until construction begins, the property is being used as a parking site.

Reserves

The entire amount of $356,949 budgeted for contingencies during 1951-52 was raised by county-wide property taxes. There is no way of determining the purposes for which this fund will be spent during 1951-52, but it may be assumed that the pattern of expenditure will probably not differ significantly from that made out of unappropriated reserves during the preceding fiscal year. In fact, the county auditor's office reports that the 1950-51 pattern can be taken as fairly typical of other years.

An analysis of the 1950-51 expenditures from unappropriated reserves shows that they were widely distributed over all county functions, except roads and bridges. They averaged about 10 percent of each department's total outlays. Almost 91 percent of the expenditures were for county services which were available to all county residents, regardless of place of residence. The remaining 9 percent, about $32,500, of the unappropriated reserves for 1951-52, supported those county functions which were considered in this report as affecting less than the entire county, principally the residents of unincorporated areas.

Since the unappropriated reserves were derived from current ad valorem taxes, the amount contributed by residents of cities may be estimated from the proportion of the total county tax base which lies inside cities. Since the cities included 58 percent of all county assessed valuations, it may be estimated that city residents contributed about $18,850 of the amount of unappropriated reserves to be spent on less than county-wide functions ($32,500).

Summary

Table 16 presents a summary of the foregoing examination of various services provided by Sacramento County. Of total expenditures of $19,723,291, it was found that $19,252,347, or 97.6 percent, of all expenditures could be considered as an amount spent for services which were provided to the entire county at the same general service level in all areas. The remainder, $470,944, or 2.4 percent, of county expenditures in 1951-52 was spent on services which either were not provided on a county-wide basis, or were administered in such a way that unequal amounts or levels of service resulted among different county areas.

The largest amounts involved in the latter figure were those related to the general county functions of protection and roads and bridges. It was shown in the foregoing analyses of these functions that 28.3 percent of total net expenditures for the protection function (sheriff's department) and 14.3 percent of total net expenditures for roads and bridges (rural secondary roads) could be considered as involving issues of equity as between those county residents paying for the service and those receiving it.

Table 17 traces the shares of expenditures for services which are less than county-wide to taxpayers of particular county areas. The net expenditures for every service pointed out in Table 16 below as involv-

TABLE 16

SACRAMENTO COUNTY

DISTRIBUTION OF NET EXPENDITURES FOR COUNTY SERVICES, BY BUDGET CATEGORY

1951-52

Budget category	*Net expenditures* [a]	*Expenditures affecting the entire county* [b]	*Percent of total net expenditures*	*Expenditures affecting less than the entire county* [c]	*Percent of total net expenditures*
General government	$1,223,161	$1,201,389	98.2	$21,772	1.8
Protection to persons and property	724,652	519,858	71.7	204,794	28.3
Health and sanitation	698,778	598,862	85.7	99,916	14.3
Roads and bridges	3,304,687	3,197,549	96.8	107,138	3.2
Recreation	22,940	22,940	100.0	---	---
Education	220,772	215,948	97.8	4,824	2.2
Charities and corrections	12,033,642	12,033,642	100.0	-	---
Miscellaneous and reserves	1,494,659	1,462,159	97.8	32,500	2.2
Total	$19,723,291	$19,252,347	97.6	$470,944	2.4

NOTES:

[a] Budgeted expenditures less a total of $542,133 of fees, charges, and other revenue related to various services. See Table 1 of Appendix B.

[b] Expenditures in this column either support county services which are clearly county-wide or involve considerations of revenue sources and county policy which create no inequities for any county taxpayer groups.

[c] Expenditures in this column are financed to some extent out of county property tax levies and other county-wide revenues, but support services not provided throughout the county.

SOURCE: Analyses of county department operations and expenditures. Budget figures are from the "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento.

ing issues of equity are shown, along with the amount of revenue supporting the expenditure which may be "traced" to city and noncity residents. Roads and bridges have been omitted because, as was pointed out above, the issues with respect to rural secondary roads are open to serious question.

Two-thirds of the total amount of revenue needed to finance these services may be traced to the residents of cities and unincorporated areas, a total of $231,160. Of this total, $102,400, or 44 percent, was collected from the residents of all cities. An additional amount of $31,390 was collected from residents of Galt and Sacramento, for county services provided to all cities except these two and to the unincorporated areas as well.

Table 18 shows the reductions in tax rates which it is estimated would result for residents of cities, and the increases which would result for residents of unincorporated areas, if the amounts which city residents pay toward these less than county-wide services were shifted to residents of areas outside cities. These savings and increases have been put in the form of property tax rate equivalents. The residents of all cities would have gained a tax rate reduction of $0.0598 per $100 of assessed valuation; residents of the City of Sacramento would have gained an additional reduction of $0.019, or a total of $0.078. In the unincorporated area, the property tax rate would have been higher by $0.106 per $100 of assessed valuation.

TABLE 17
SACRAMENTO COUNTY
COUNTY SERVICES PROVIDED TO LESS THAN THE ENTIRE COUNTY AND FINANCED BY TRACEABLE REVENUES
1951-52

			Estimated amount of traceable revenues			
Budget categories and departments	*Net expenditures affecting less than the entire county*	*Estimated total traceable revenues*	*Financing county services outside all cities*	*Collected from residents of all cities*	*Financing county services outside the Cities of Galt and Sacramento*	*Collected from residents of Galt and Sacramento*
General government:						
County planning commission	$21,772	$15,600	$15,600	$8,900		
Protection to persons and property						
Sheriff and constables	$183,495	$131,700	$131,700	$74,650		
Humane service and pound	21,299	15,300	---	---	$15,300 [a]	$8,340 [a]
Total	$204,794	$147,000	$131,700	$74,650	$15,300	$8,340
Health and sanitation						
Health department	$99,416	$32,240			$32,240 [b]	$21,000 [b]
County dump	500	360			360 [b]	170 [b]
Total	$99,916	$32,600			$32,600	$21,170
Education						
County library	$4,824	$3,460			$3,460 [b]	$1,880 [b]
Miscellaneous and reserves						
Unappropriated reserves	$32,500	$32,500	$32,500	$18,850		
Total	$363,806	$231,160	$179,800	$102,400	$51,360	$31,390
Percentage of total traceable revenues		100.0	77.8		22.2	

NOTES:
[a] County pound services provided outside Sacramento and Galt.
[b] County services provided outside the City of Sacramento only.

SOURCE: Analyses of county departmental operations and expenditures. Budget figures are from the "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento.

TABLE 18
SACRAMENTO COUNTY
HYPOTHETICAL COUNTY PROPERTY TAX RATES WHICH RESULT FROM SHIFTING THE CITY SHARE OF THE TRACEABLE COST OF LESS-THAN-COUNTY-WIDE SERVICES FROM CITY TO NONCITY RESIDENTS
1951-52

Tax area	*Assessed valuation 1951-52*	*City share of the traceable cost of less-than-county-wide services*	*Tax rate required to raise the city share*	*Total increase or decrease in county tax rate*	*Basic county tax rate 1951-52*	*Hypothetical county tax rate*
Tax rate reductions						
All cities	$174,196,410	$102,400	$0.059	$0.059	$2.050	$1.991 [a]
Sacramento City	164,877,220	31,390	0.019	0.078	2.050	1.972 [b]
Tax rate increases						
All unincorporated areas	125,990,112	133,790	0.106	0.106	2.050	2.156

NOTES:
[a] The hypothetical rate computed for "all cities" would actually apply to all cities except Sacramento. Galt would also have had an additional reduction for pound services not received, but the amount is so small that it is disregarded.
[b] The hypothetical rate computed for Sacramento includes expenditures for other county services in addition to those not performed in all other cities.

SOURCE: Assessed valuations from "Approved Budget for the Fiscal Year Ending June 30, 1952," County of Sacramento. City share of costs from Table 17.

CITY SALES TAXES AND PARKING METER FEES

No city in Sacramento County currently derives revenue from a retail sales tax. The City of Sacramento experimented briefly with a retail sales tax, but the levy was effective for only nine months, from July 13, 1949, to April 22, 1950. The tax has not been re-enacted since its elimination.

The City of Sacramento is the only city in the county which has installed parking meters. Revenues from this source are shown below for three fiscal years.

Year	*Amount*
1949-50	$231,168
1950-51	222,214
1951-52 (estimated)	220,000

City receipts have thus averaged around $225,000 per year. Unquestionably, a substantial share of this revenue is contributed to the city by residents of other cities and the unincorporated areas. This is obviously true, since the City of Sacramento is a trade and marketing center not only for Sacramento County itself but for a wide area covering a substantial part of many surrounding counties. In the absence of a detailed count, however, no estimate may be hazarded as to the amount noncity residents contribute to the treasury of the City of Sacramento through parking meter fees.

COUNTY AND SPECIAL DISTRICT TAXES PAID BY CITIES

The City of Sacramento pays property taxes to the county on city-owned facilities located outside its corporate limits. Isleton pays special district property taxes on city property located within the district boundaries. The amounts paid, as shown by the city budgets, are listed below.

The figures are for Fiscal 1951.

City	*County taxes paid*	*Special district taxes paid*	*Facility taxed*
Sacramento	$7,785	$3,535	Airport; park; water system.
Isleton	---	30	City hall and city park.

CHAPTER V

KERN COUNTY

GENERAL CHARACTERISTICS OF KERN COUNTY

Physical and Economic Characteristics

In area, Kern County, with 8,159 square miles, ranks third among the counties of the State. It is bounded on the north by Kings, Tulare and Inyo Counties; on the east by San Bernardino County; on the south by Los Angeles and Ventura Counties; and on the west by San Luis Obispo County. It lies at the southern end of the San Joaquin Valley, at the juncture of three mountain ranges—the Sierra Nevada to the east; the Tehachapi to the south; and the Coast Range to the west. These ranges cover about 60 percent of the total county area. The county derives most of its water supply from the Kern River, which flows southwestward from the Sierras.

Less than 10 percent of the total land area is classifiable as cultivated, urban or industrial, and most of this type of land lies close to the center of the county. Figure 1 presents a map of the county showing the location of the cities and the unincorporated urban areas. It should also be noted that less than 75 percent of the total county acreage (5,228,800) is privately owned.

Natural resources include oil, natural gas and fertile topsoils. The latter, combined with irrigation and skillful farm management, have created the basis for Kern County's impressive agricultural production record. Of California's total mineral production, Kern County accounts for about one-fourth, and 90 percent of this production derives from oil and gas. This makes it the leading county in annual value of mineral production and the source of about 6 percent of the Nation's oil. The value of mineral products currently is in the neighborhood of $250,000,000. Agricultural products run a close second, with a total value of approximately $200,000,000. Cotton is the leading crop, with livestock, potatoes and grapes following closely. All of these products have annual values exceeding $20,000,000. Other principal occupations in the county are trade and the provision of services. About one-third of the county labor force in 1950 was employed in retail and wholesale trade outlets, financial institutions, transportation and utilities, and service establishments.

Population Distribution

There are seven incorporated cities in Kern County, ranging in size from Maricopa, with a population in 1950 of 800, to Bakersfield, the county seat, with a population of 34,784. The other cities and their populations in 1950 were Delano (8,717), Wasco (5,592), Taft (3,707), Shafter (2,207), and Tehachapi (1,685). According to the Kern County Planning Commission, there were 22 unincorporated areas which, in 1950, displayed urban characteristics as judged by population densities and types of land use. These were of two types, urban fringes contiguous to existing incorporated cities, and urban communities not adjacent to any city. Four urban fringes existed around the city of Bakersfield, viz., Oildale, East Bakersfield, South Bakersfield and West Bakersfield; while three others were located around Taft. These latter were Ford City, Taft Heights and South Taft. All of these areas are shown in Figure 2. A sizable fringe area also exists around Shafter. These fringe areas contained about 47 percent of the total population living in the unincorporated area of the county in 1950. Urban communities located apart from incorporated cities accounted for the remaining 14 unincorporated communities and included about 12 percent of the population of the unincorporated area in 1950. Five of these communities had populations of less than 500, the minimum number necessary for incorporation proceedings to be initiated. These five smaller centers were Inyokern, Johannesburg, Lost Hills, Randsburg and Valley Acres. The nine larger communities were Arvin, Buttonwillow, Boron, Fellows, Lamont, McFarland, Mojave, Ridgecrest and Rosamond. These latter ranged in population from 550 in Rosamond to 5,056 in Arvin.

The population of Kern County grew from 82,570 in 1930 to 228,309 in 1950, almost threefold. In the decade between 1940 and 1950 the population increased by 93,185 persons, or 69 percent. This increase was considerably larger than the gain of 53.3 percent shown by the State of California as a whole. It was also larger than the percentage increases experienced by five out of eight counties of comparable population, as Table 1 below shows.

TABLE 1

KERN COUNTY
POPULATION INCREASES FOR KERN COUNTY AND SELECTED COUNTIES OF COMPARABLE SIZE

1940 to 1950

	Population		*Percentage increase from*
County	*1940*	*1950*	*1940 to 1950*
KERN	135,124	228,309	69.0
San Joaquin	134,207	200,750	49.6
Fresno	178,565	276,515	54.9
Sacramento	170,333	277,140	62.7
Orange	130,760	216,224	65.4
Santa Clara	174,949	290,547	66.1
San Bernardino	161,108	281,642	74.8
San Mateo	111,782	235,659	110.8
Contra Costa	100,450	298,984	197.6

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

Population growth in the unincorporated areas of Kern County between 1940 and 1950 exceeded that of the cities, with the exception of the City of Delano. Table 2 below shows that with the exception of Delano and Shafter, the increase in city population was far

FIGURE 1

KERN COUNTY

INCORPORATED AND UNINCORPORATED AREAS

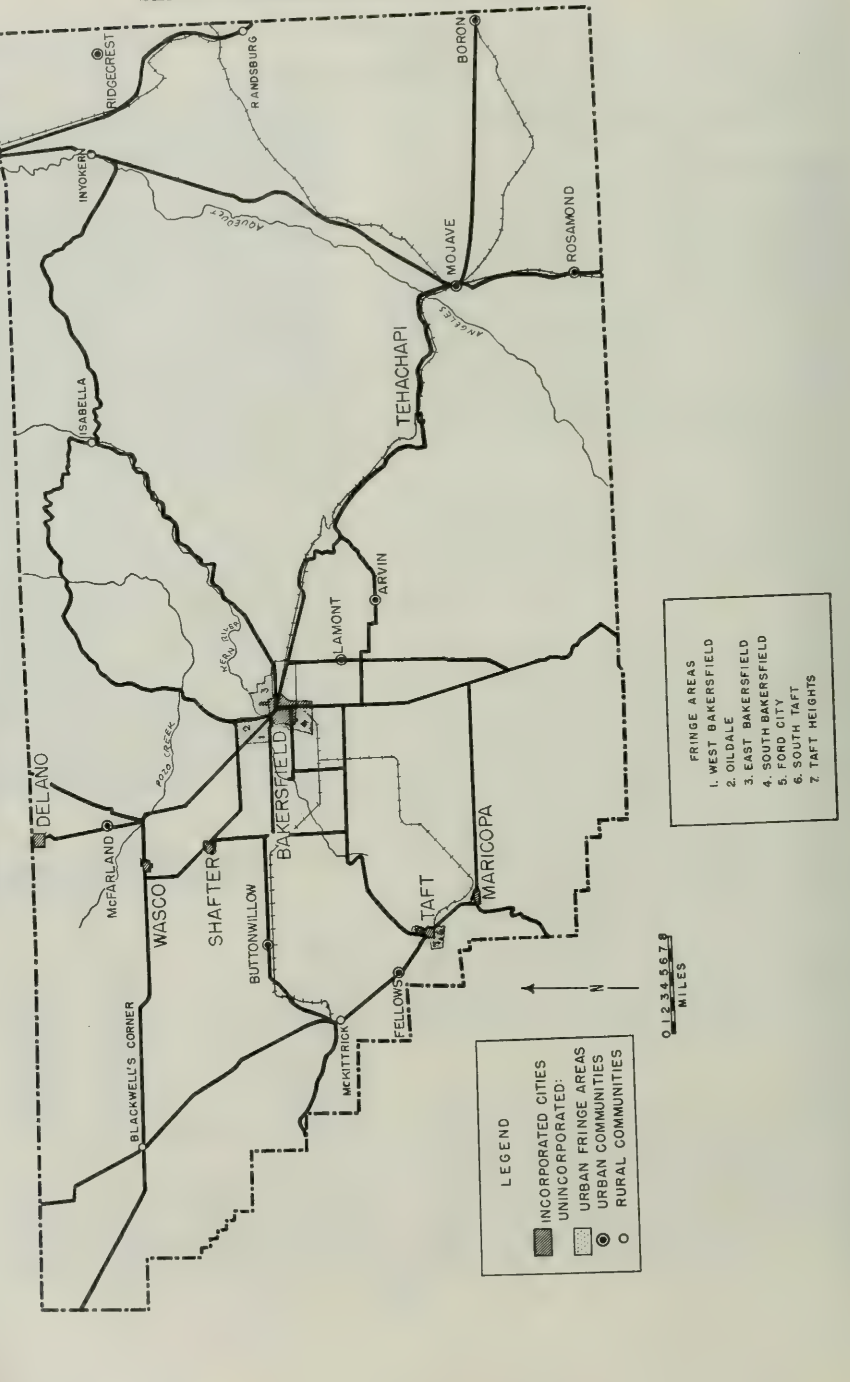
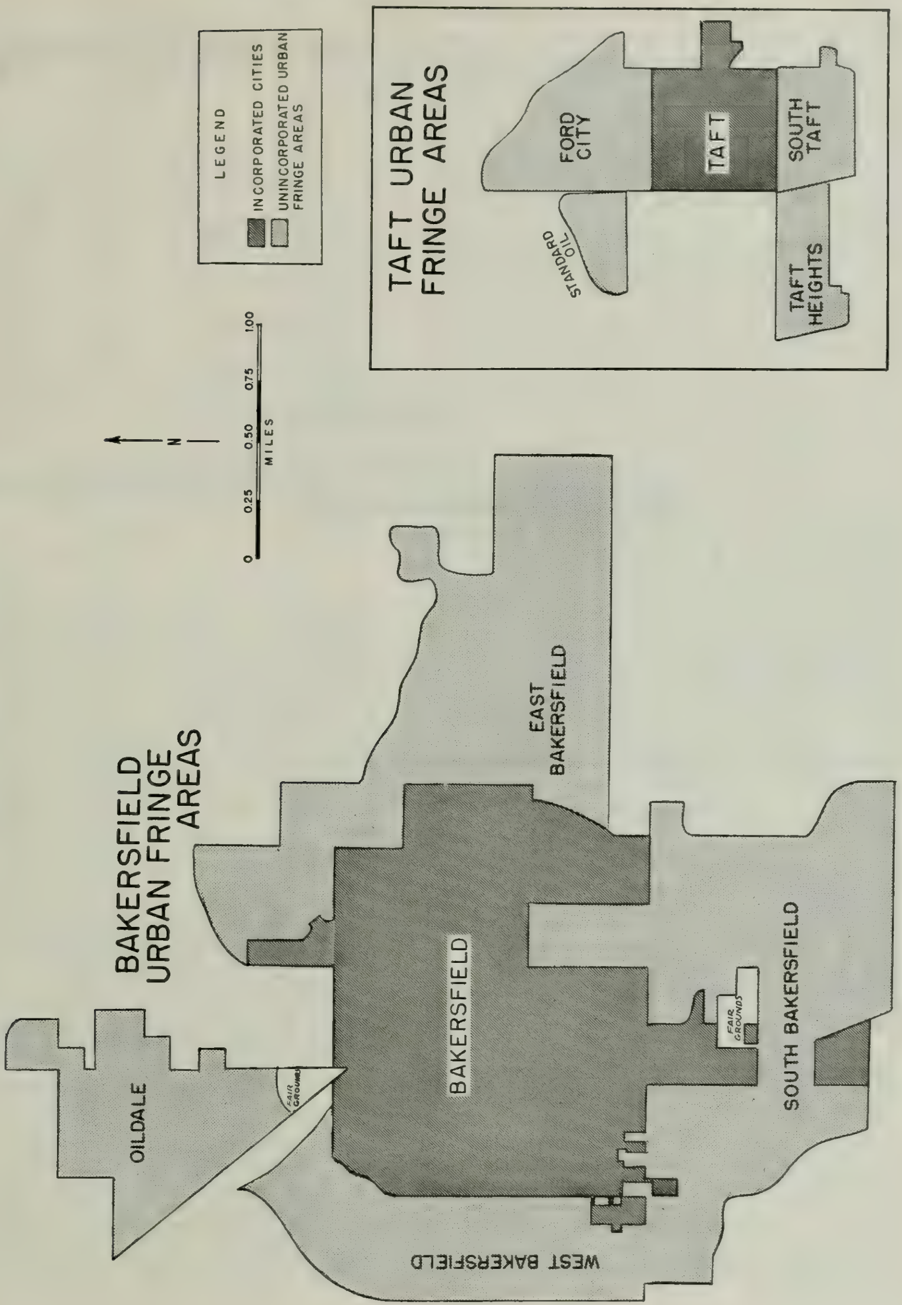


FIGURE 2

KERN COUNTY

PRINCIPAL URBAN FRINGE AREAS, 1951



below the 80 percent gain shown by the unincorporated areas. Figure 3 shows these relative gains in the population of these various areas. On the basis of the definitions of the U. S. Bureau of the Census, 60 percent of the population in Kern County, or 135,555 persons, lived in urban areas in 1950. Of this total, 78,063, or 57.6 percent, lived in unincorporated urban areas, principally in the fringe areas around the Cities of Bakersfield and Taft and in the unincorporated urban communities of Arvin, Lamont, McFarland and Mojave.

Table 3 compares the urban population of Kern County with counties of similar size. The urban population of the county as a percentage of total population was exceeded by all other counties except Fresno. However, Kern County had a larger percentage of its population living in *unincorporated* urban areas than any other county among the eight listed. For all nine counties, Kern shows the lowest percentage of urban population living inside cities (25.2 percent) and the highest percentage of urban population living in unincorporated urban areas (34.2 percent).

A more clear picture of population growth outside cities and population distribution in the unincorporated area of Kern County may be gained from the data compiled by the U. S. Bureau of the Census showing population by judicial townships in 1940 and 1950. Table 4 presents the population figures for the 17 townships which existed in 1940 and 1950, and shows the absolute and relative changes which occurred during this decade in the population of the unincorporated areas of these townships.[1] Figure 4 presents a map of the county, by judicial districts in 1950, and hence shows where the changes listed in Table 4 occurred.

TABLE 2
KERN COUNTY
POPULATION OF INCORPORATED AND UNINCORPORATED AREAS
1940 and 1950

Area	*Population* *1940*	*Population* *1950*	*Percent of total population* *1940*	*Percent of total population* *1950*	*Percentage increase 1940 to 1950*
Incorporated areas	40,222	57,492	29.8	25.2	42.9
Bakersfield	29,252	34,784	21.6	15.2	18.9
Delano	4,573	8,717	3.4	3.8	90.6
Wasco	[a]	5.592	--	2.4	--
Taft	3,205	3,707	2.4	1.6	15.7
Shafter	1,258	2,207	0.9	1.0	75.4
Tehachapi	1,264	1,685	0.9	0.7	33.3
Maricopa	670	800	0.5	0.4	19.4
Unincorporated areas	94,902	170,817	70.2	74.8	80.0
Total	135,124	228,309	100.0	100.0	69.0

NOTE: [a] Not incorporated in 1940.

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

TABLE 3
KERN COUNTY
URBAN POPULATION IN KERN COUNTY AND SELECTED COUNTIES OF COMPARABLE SIZE
1950

County	*Percent of total county population* *Urban areas*	*Percent of total county population* *Cities*	*Percent of total county population* *Unincorporated urban areas*	*Unincorporated urban area population as a percentage of total urban population*
KERN	59.4	25.2	34.2	57.6
Fresno	56.2	46.6	9.6	17.0
San Bernardino	66.4	52.2	14.2	21.3
Orange	67.6	57.6	10.0	14.8
San Joaquin	69.2	49.1	20.1	29.1
Contra Costa	71.7	59.1	12.6	17.6
Santa Clara	74.3	55.4	18.9	25.5
Sacramento	74.8	53.5	21.3	28.5
San Mateo	93.1	78.2	14.9	16.0
Average	70.3	53.2	17.1	24.3

SOURCE: Calculated from data in Table 1 and from the U. S. Bureau of the Census, 1950 Population in California.

TABLE 4
KERN COUNTY
POPULATION CHANGES IN THE UNINCORPORATED PORTIONS OF TOWNSHIPS
1940 to 1950

	Population *1940*	*Population* *1950*	*Percentage change 1940 to 1950*
Township 1 [a]	1,914	1,748	—8.7
Township 2	4,768	8,115	70.2
Township 3	30.557	61.949	102.7
Township 4	797	1,198	50.3
Township 5 [b]	1,268	1,751	38.1
Township 6	---	---	--
Township 7	8,719	10,552	21.0
Township 8 [c]	1,876	2,932	56.3
Township 9 [d]	6,788	2,709	—60.1
Township 10	781	712	—8.8
Township 11	3,190	7,923	148.4
Township 12	1,490	1,319	—11.5
Township 13	436	488	11.9
Township 14 [a]	---	11,557	--
Township 15 [c]	22,122	45,157	104.1
Township 16	7,626	9,837	29.0
Township 17	2,437	2,870	17.8
Totals	94,902 [e]	170,817	80.0

NOTES:

[a] Part of Township 1 was used to form a new Township 14 in 1947.

[b] Former Township 14 was annexed to Township 5 in 1942.

[c] Part of Township 8 was added to Township 15 in 1947 and part of Township 15 was added to Township 8 in 1947.

[d] The large absolute decrease in this township results from the incorporation of Wasco in 1945.

[e] Column does not add to total shown due to errors in distribution by the Bureau of the Census.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951.

The distribution of Kern County's population in 1950 by city, unincorporated urban area and rural area is presented in Table 5. It should be noted that the proportion of total population shown as residing in unincorporated urban areas in this table (42.8 percent) exceeds the figure of 34.2 shown in Table 3. This difference derives from the broader definition of an unincorporated urban area used in Table 5 as compared with the definition used by the U. S. Bureau of the Census, upon which the calculations in Table 3 are based. However, it is clear from Table 5 that 25.2 percent of the population of the county lived in incorporated cities; 42.8 percent in unincorporated urban fringes or communities; and 32 percent lived in rural areas in 1950. Most of the population of un-

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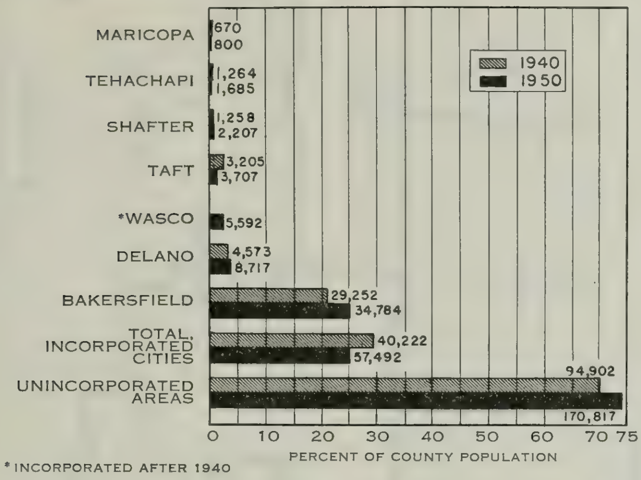
[1] Kern County currently has only 16 townships, now known as judicial districts, as a result of changes effected by the court reorganization plan of 1952.

FIGURE 3

KERN COUNTY
POPULATION OF CITIES AND UNINCORPORATED AREAS
1940 and 1950



incorporated urban areas resided in the Bakersfield, Shafter and Taft fringe areas. These areas accounted for about 35 percent of the total population of the county and 47 percent of the population of unincorporated urban areas. Other unincorporated urban areas not located contiguous to any city accounted for about 8 percent of total county population and 18 percent of the unincorporated urban area population. Most of this latter population lived in the communities of Arvin, Lamont and McFarland.

Several cities have increased their areas and population since the census of 1950 through the process of annexation. Taft, Tehachapi and Delano each gained between 8 and 10 acres, but all of this new territory was uninhabited. Bakersfield reported nine annexations between May, 1950 and January, 1952, which increased the area of the city by 876.7 acres and its population by 7,747. The largest single annexation involved a portion of the East Bakersfield fringe area comprising approximately 5,500 persons; this addition to the city occurred in December, 1950.

Assessed Valuations

The property tax base of Kern County amounted to $533,639,595 for the Fiscal Year 1951-52. Of this total, 12.5 percent ($66,597,850) represented county assessed valuations inside cities; 6.2 percent represented assessed valuations of unincorporated urban areas ($33,286,810); and $433,808,935, or 81.3 percent represented the assessed valuation of the rural area. The distribution of the county tax base in fiscal 1952 by cities, unincorporated urban areas and rural areas is shown in Table 6.

Two factors explain the relatively small proportion of the tax base lying inside cities. First, the city population of Kern County is smaller in proportion to the total for the county than the average for counties of comparable size. Second, great concentrations of high value taxable wealth, especially agricultural land and oil and gas fields, are located in the sparsely settled rural areas. Figure 5 shows this quite clearly for the oil producing areas of the western part of the county. Only two cities, Bakersfield and Delano, had county tax bases of 1 percent or more of the total county tax base.

FIGURE 4

KERN COUNTY
JUDICIAL TOWNSHIPS

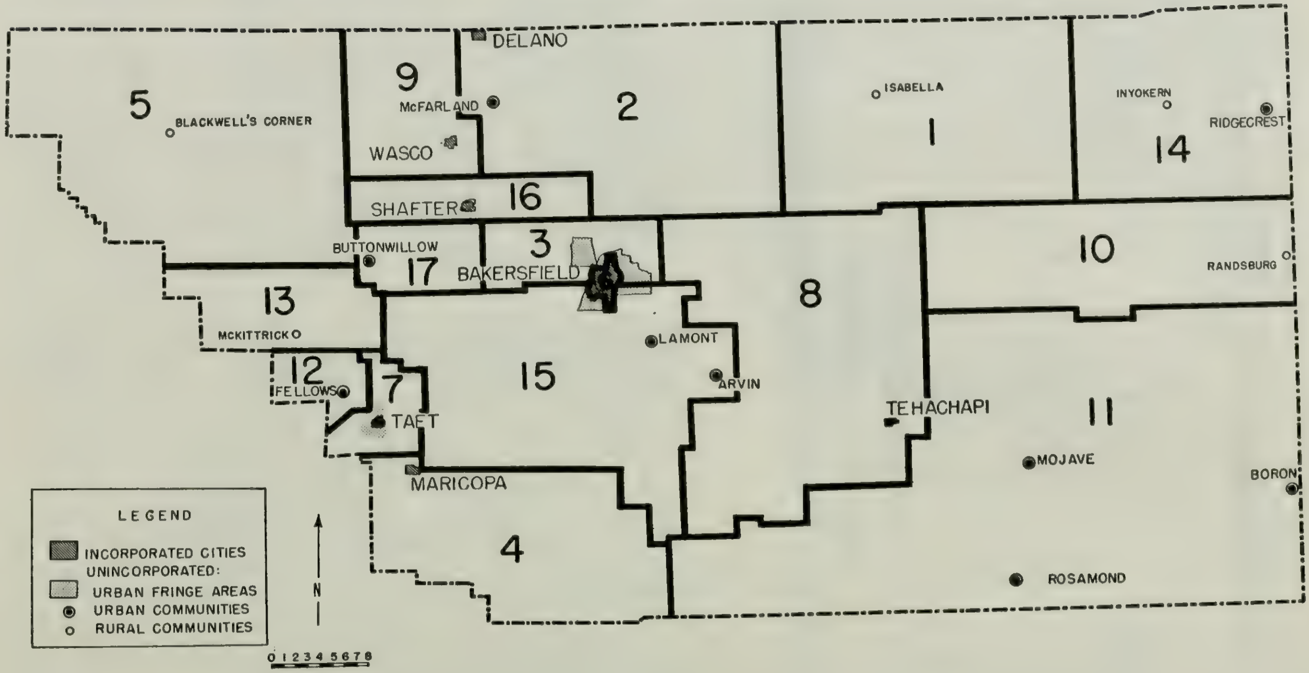


TABLE 5

KERN COUNTY
POPULATION BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS

1950

Areas	*Population*	*Percent of total county population*
Cities	57,492	25.2
Bakersfield	34,784	15.2
Delano	8,717	3.8
Maricopa	800	0.4
Shafter	2,207	1.0
Taft	3,707	1.6
Tehachapi	1,685	0.7
Wasco	5,592	2.5
Unincorporated urban areas[a]	97,647	42.8
Arvin	5,007	2.2
Bakersfield fringe	68,342	29.9
Oildale	16,615	7.3
East Bakersfield	38,177	16.7
South Bakersfield	12,120	5.3
West Bakersfield	1,430	0.6
Boron	598	0.3
Buttonwillow	988	0.4
Fellows	682	0.3
Lamont	3,571	1.6
McFarland	2,183	1.0
Mojave	2,055	0.9
Ridgecrest	2,028	0.9
Rosamond	550	0.2
Shafter fringe	2,202	1.0
Taft fringe	9,441	4.1
Ford City	4,347	1.9
South Taft	2,918	1.3
Taft Heights	2,176	1.0
Rural areas[b]	73,170	32.0
Total	228,309	100.0

NOTES:

[a] Consisting of unincorporated places of 2,500 or more in 1950, as listed by the U. S. Bureau of the Census, and urban centers of 500 people or more, but less than 2,500, as delineated by the Kern County Planning Commission. Thus, the percentage figure for the total county population, 42.8, exceeds the figure of 34.2 which results from the application of the census definition alone.

[b] Includes all population of areas other than that in cities or in areas with urban characteristics. In a few instances this means inclusion of "transition" areas somewhere between an urban density of 500 dwellings per square mile and a strictly rural, extremely scattered, population pattern.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951. Data on unincorporated urban areas provided by the Kern County Planning Commission.

TABLE 6

KERN COUNTY
ASSESSED VALUATIONS BY CITIES, UNINCORPORATED URBAN AREAS, AND RURAL AREAS

1951-52

Areas	*Assessed valuation*	*Percent of total county assessed valuation*
Cities	$66,597,850	12.5
Bakersfield	51,640,300	9.7
Delano	5,073,750	1.0
Maricopa	349,895	[a]
Shafter	2,256,410	0.4
Taft	3,668,825	0.7
Tehachapi	830,160	0.2
Wasco	2,778,510	0.5
Unincorporated urban areas	33,286,810	6.2
Arvin	1,162,205	0.2
Bakersfield fringe	24,655,575	4.6
Oildale	6,634,120	1.2
East Bakersfield	9,528,300	1.8
South and West Bakersfield	8,493,155	1.6
Boron	171,515	[a]
Buttonwillow	296,765	[a]
Fellows	297,705	[a]
Lamont	854,205[b]	0.2
McFarland	712,095	0.1
Mojave	872,205	0.2
Ridgecrest	962,565	0.2
Rosamond	163,630	[a]
Shafter fringe	900,000[c]	0.1
Taft fringe	2,238,345	0.4
Ford City	819,810	0.2
South Taft	599,260	0.1
Taft Heights	819,275	0.2
Rural areas	433,808,935	81.3
Total	$533,693,595	100.0

NOTES:

[a] Less than one-tenth of 1 percent. Items in the percent column may not add to totals shown due to rounding.

[b] Computed by the county assessor.

[c] Estimated on the basis of comparison with similar areas.

SOURCE: "Kern County Tax Rates and Assessed Valuation for the Year of 1951-52," compiled by the county auditor.

Table 7 compares this distribution of the county property tax base in Kern County with the distribution inside and outside cities prevailing in eight other counties. The distribution of assessed valuations in

TABLE 7

KERN COUNTY
TOTAL AND PER CAPITA ASSESSED VALUATIONS OF KERN COUNTY AND EIGHT SELECTED COUNTIES

1951-52

	Assessed valuations			*Percent of total county assessed valuation*		*Per capita assessed valuation*		
County	*Total*	*Inside cities*	*Outside cities*	*Inside cities*	*Outside cities*	*County total*	*Inside cities*	*Outside cities*
KERN	$533,693,595	$66,597,850	$467,095,745	12.5	87.5	$2,338	$1,158	$2,734
Fresno	574,554,130	131,647,085	442,907,045	22.9	77.1	2,078	1,021	3,002
San Bernardino	309,669,980	128,492,530	181,177,450	41.5	58.5	1,099	873	1,347
Contra Costa	334,617,810	143,326,780	191,291,030	42.8	57.2	1,119	811	1,564
San Joaquin	300,072,435	132,949,360	167,123,075	44.3	55.7	1,495	1,350	1,633
Orange	462,789,740	246,385,845	216,403,895	53.2	46.8	2,140	1,977	2,363
Santa Clara	399,091,370	229,197,320	169,894,050	57.4	42.6	1,374	1,424	1,311
Sacramento	300,186,522	174,196,410	125,990,112	58.0	42.0	1,083	1,175	977
San Mateo	260,122,804	194,086,461	66,036,343	74.6	25.4	1,104	1,054	1,283

SOURCE: "Annual Report of Financial Transactions of Municipalities and Counties of California for the Fiscal Year Ending June 30, 1951," Office of the State Controller, Sacramento.

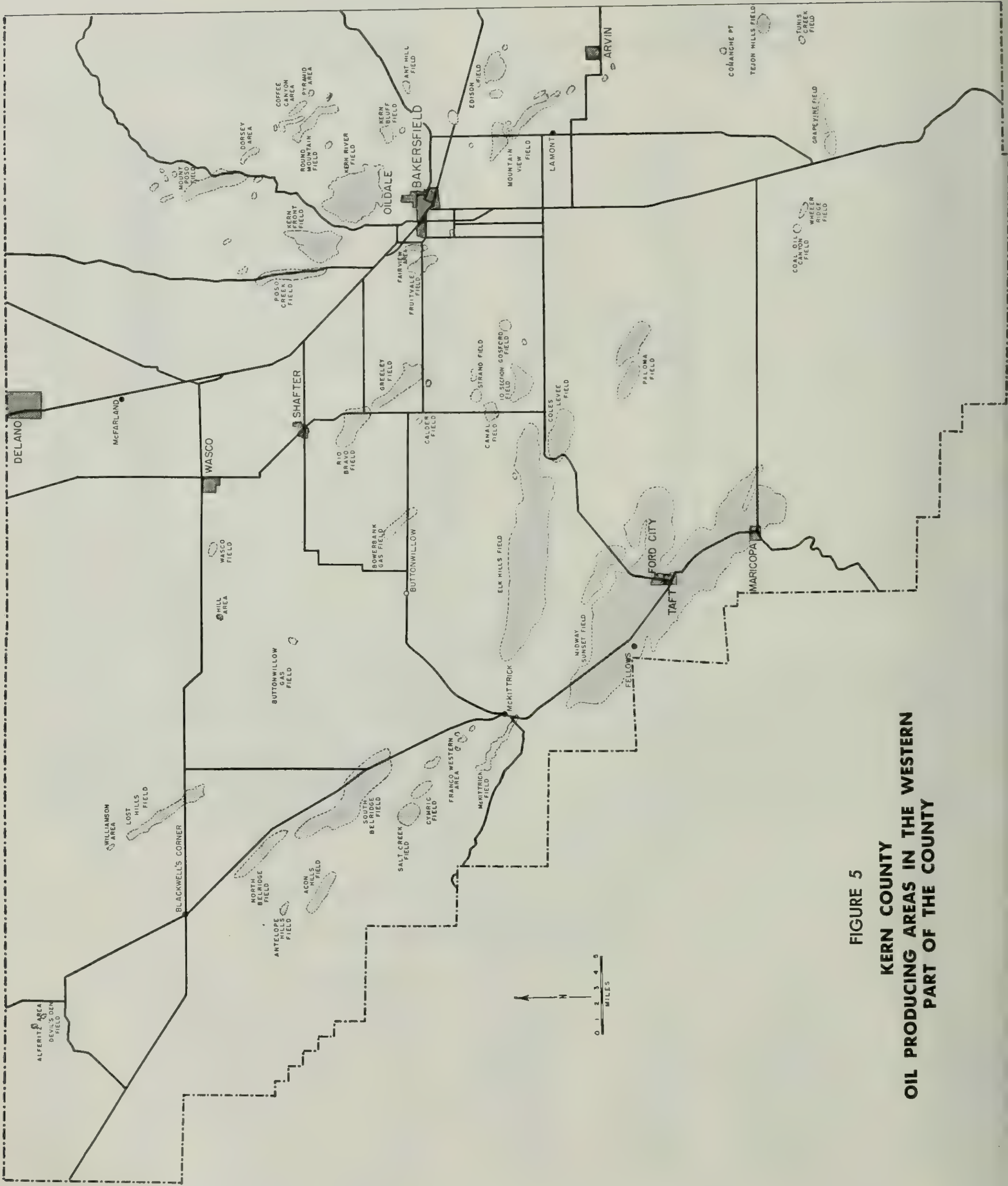


FIGURE 5

KERN COUNTY
OIL PRODUCING AREAS IN THE WESTERN
PART OF THE COUNTY

Kern County shows the smallest percentage located inside cities and by far the largest percentage among the counties, located outside cities. In terms of per capita assessed valuations, Kern County ranked fifth in valuations inside cities, and second in valuations outside cities.

Table 8 compares the percentage distributions of population in 1950 with the assessed valuations of Kern County in fiscal 1952. It is clear that the distribution of assessed valuation bears little relationship to the distribution of population. All the urban areas together account for 68.0 percent of the county population, but only 18.7 percent of the tax base. Cities alone account for 25.2 percent of the population and 12.5 percent of assessed valuation, while the urban unincorporated areas contain 42.8 percent of the population and 6.2 percent of the valuation. Rural areas, on the other hand, account for only 32 percent of the population but 81.3 percent of county assessed valuations. Such a heavy concentration of the property tax base in rural areas with relatively small population means, of course, that in Kern County an unusually large share of the costs of county government must be borne by the owners of property located in these areas.

SPECIAL DISTRICTS IN KERN COUNTY

As of April 1, 1952, there were 67 special districts in Kern County.[2] These districts are shown by type and number in Table 9. This table also presents data with respect to district assessed valuations and expenditures in 1951-52. The services provided and

TABLE 8

KERN COUNTY

PERCENTAGE DISTRIBUTION OF POPULATION IN 1950 AND ASSESSED VALUATIONS IN 1951-52, BY AREAS

Area	*Percent of total population 1950*	*Percent of total assessed valuation 1951-52*
Cities	25.2	12.5
Bakersfield	15.2	9.7
Delano	3.8	1.0
Maricopa	0.4	[a]
Shafter	1.0	0.4
Taft	1.6	0.7
Tehachapi	0.7	0.2
Wasco	2.5	0.5
Unincorporated Urban Areas	42.8	6.2
Arvin	2.2	0.2
Bakersfield fringe	29.9	4.6
Oildale	7.3	1.2
East Bakersfield	16.7	1.8
South and West Bakersfield	5.9	1.6
Boron	0.3	[a]
Buttonwillow	0.4	[a]
Fellows	0.3	[a]
Lamont	1.6	0.2
McFarland	1.0	0.1
Mojave	0.9	0.2
Ridgecrest	0.9	0.2
Rosamond	0.2	[a]
Shafter fringe	1.0	0.1
Taft fringe	4.1	0.4
Ford City	1.9	0.2
South Taft	1.3	0.1
Taft Heights	1.0	0.2
Rural Areas	32.0	81.3
Total	100.0	100.0

NOTE: [a] Less than one-tenth of 1 percent.
SOURCE: Data from Tables 5 and 6.

TABLE 9

KERN COUNTY

ASSESSED VALUATIONS AND EXPENDITURES OF SPECIAL DISTRICTS

1951-52

			Assessed valuation				
Type of district	*Number of districts*	*Governed by*	*Total amount*	*As a percent of total county valuation*	*Amount in unincorporated areas*	*Valuation in unincorporated area as a percent of total district valuation*	*Budgeted operational expenditures 1951-52 (or actual 1950-51)*[a]
Fire protection	1	Local board	$1,864,580	0.3	$1,864,580	100.0	$5,680
Fire protection	9	Board of supervisors[b]	7,760,935	1.4	7,760,935	100.0	23,293
Hospital	2	Local board	182,475,820	34.2	177,626,940	97.3	---[d]
Lighting	15	Board of supervisors	14,258,405	2.7	14,258,405	100.0	38,038
Recreation	2	Local board	93,442,200	17.5	86,994,865	93.1	49,362
Sanitation	11	Board of supervisors[c]	11,429,535	2.1	10,516,445	92.0	139,690
Sanitary	1	Local board	6,634,120	1.2	6,634,120	100.0	26,686
Municipal water	1	Local board	43,277,335	8.1	---	---	---
Public utility	9	Local board	17,438,885	3.3	9,671,555	55.5	102,007
Cemetery	6	Local board	149,104,820	27.9	136,488,610	91.5	110,478
Levee	1	Local board	44,259,120	8.3	5,889,460	13.3	11,243
Storm waters	1	Board of supervisors	1,339,550	0.2	---[e]	---	---[e]
Irrigation	1	Local board	none listed	---	---	---	---
Water storage	2	Local board	none listed	---	---	---	---
Mosquito abatement	3	Local board	460,383,445	86.3	396,872,165	86.2	267,819
Soil conservation	2	Local board	2,112,390	0.4	2,094,095	99.1	---

NOTES:

[a] Actual figures for 1950-51 are shown where budgeted amounts for 1951-52 were not available. Bond interest and principal requirements are not included.
[b] Governed by county supervisors or their appointees.
[c] Panorama and Union Avenue Sanitation Districts have governing boards composed of two county supervisors and the Mayor of Bakersfield.
[d] To date, the bulk of hospital district outlays have been for construction and taxes.
[e] Storm Waters District No. 1, covering part of Bakersfield and the La Cresta Area northeast of Bakersfield, has never been active since its formation. The valuation inside Bakersfield is not known.

SOURCE: "Taxpayers' Guide" for Kern County, April 1, 1952; "Kern County Tax Rates and Assessed Valuations for the Year 1951-52"; "County Budget" for the fiscal year ending June 30, 1952.

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[2] *Taxpayers' Guide*, Kern County, April 1, 1952.

the areas served by those special districts which provide what might be considered as "municipal-type" services are discussed below. These include the first nine types of districts shown in Table 9.

Fire Protection Districts

The 10 fire districts include within their boundaries five unincorporated communities and five urban fringe areas. These districts and the unincorporated urban areas receiving district fire protection are shown below.

District	*Governing body*	*Unincorporated urban area*
Arvin	Local board	Arvin
Inyokern	Board appointed by county supervisors	
Mojave	Board appointed by county supervisors	Mojave
Ridgecrest	Board appointed by county supervisors	Ridgecrest
Rosamond	Board appointed by county supervisors	Rosamond
Ford City	County supervisors	Area north of Taft (Ford City)
La Cresta	County supervisors	Area northeast of Bakersfield
Oildale	Board appointed by county supervisors	Area north of Bakersfield (Oildale)
South Taft	County supervisors	Area south of Taft (South Taft)
Virginia Colony	County supervisors	Area east of Bakersfield

Only 2.1 percent of all assessed valuations outside cities were included in these fire districts. Important urban areas outside cities which were not protected by such districts were the South Bakersfield fringe area, Lamont, McFarland and Taft Heights. Assessed valuations of fire districts ranged from a high of $1,864,580 for Arvin to a low of $241,770 for Inyokern. Mojave Fire District had the highest budgeted expenditure ($5,936) and Inyokern the lowest ($552). Total taxes levied by fire protection districts in Fiscal 1952 amounted to $15,772 and their property tax rates ranged from $0.04 to $0.49 per $100 of assessed valuation.

All of these districts were formed for the purpose of equipping and maintaining a fire department to protect property from destruction. As a matter of fact, however, their modest expenditures are not for direct fire fighting activities, but for the improvement of the water supply through the installation of hydrants and the purchase of equipment, in order to improve the local fire insurance rating. As will be pointed out in a subsequent discussion of the services administered by Kern County, the county fire department provides most of the fire fighting equipment and personnel, and this protection is given to all county areas *outside* the City of Bakersfield.

The Arvin District was formed pursuant to Sections 14001 to 14314 of the Health and Safety Code, which provide that the governing agency for the district shall be three commissioners elected by the qualified electors of the districts. The other districts were formed pursuant either to Sections 14400 to 14593, or Section 14455 of the Health and Safety Code. Under the former, the board of supervisors is the actual governing body for the district, whereas under the latter, the board is authorized to appoint a board of commissioners to act as its agent in district matters.

Sanitation and Sanitary Districts

There are 11 sanitation districts and one sanitary district in the county. These are shown below, with the areas which they include.

District	*Governing body*	*Unincorporated urban area*
Arvin	County supervisors	Arvin
Buttonwillow	County supervisors	Buttonwillow
Inyokern	County supervisors	
McFarland	County supervisors	McFarland
Ridgecrest	County supervisors	Ridgecrest
Alta Verde	County supervisors	Area north of Bakersfield (part)
Ford City	County supervisors	Area north of Taft (Ford City)
Mt. Vernon	County supervisors	Area east of Bakersfield (part)
Panorama	Two county supervisors and the Mayor of Bakersfield	Area northeast of Bakersfield (part)
Taft Heights	County supervisors	Area southwest of Taft (Taft Heights)
Union Avenue	Two county supervisors and the Mayor of Bakersfield	Area south and southeast of Bakersfield (part)
North of River Sanitary No. 1	Locally elected board	Area north and northwest of Bakersfield (Oildale)

In the aggregate, these districts comprised 3.8 percent of the total county assessed valuation outside incorporated cities and slightly more than 50 percent of the unincorporated urban area valuation. Lamont, Mojave and South Taft were significant unincorporated areas which were not inside any of these sanitation districts.

The assessed valuations of these districts ranged from a high figure of $6,634,120 for the North of River Sanitary District to a low figure of $209,970 for the Inyokern Sanitation District. Budgeted operational expenditures for fiscal 1952 varied from $49,310 for the Mt. Vernon District to $742 for the Buttonwillow District. Total tax collections for the operation of these districts were expected to aggregate $77,790 in 1951-52; and property tax rates ranged from $1.01 per $100 of assessed valuation of real property in the Ford City District to $0.06 in the Union Avenue District. These rates were levied only upon the assessed valuation of *real* property in the district.

The 11 sanitation districts were formed pursuant to Chapter 3 of Part 3 of Division 5 of the Health and Safety Code (Sections 4700 to 4856). Districts thus formed are empowered to "construct, maintain, and operate a sewerage system and sewerage disposal or treatment plant." All the sanitation districts other than Panorama and Union Avenue consisted entirely of unincorporated territory and were governed directly by the Supervisors of Kern County. The latter two districts, however, included portions of the City of Bakersfield and were therefore governed by a three-member board consisting of two county supervisors and the Mayor of the City of Bakersfield.

The North of River Sanitary District was formed pursuant to Sections 6400 to 6915 of the Health and Safety Code (the Sanitary District Act of 1923). Districts organized under these sections have broader powers and may act "to acquire, construct, reconstruct, alter, enlarge, lay, renew, replace, maintain and operate such garbage dump sites and garbage collection and disposal systems, sewers, drains, septic tanks and sewerage collection, outfall, treatment works, and other sanitary disposal systems as is necessary." The governing body is a five-member board, elected by the voters of the district. North of River Sanitary District had actual operational expenditures of $26,686 and debt retirement outlays of $64,116 in fiscal 1951. Tax rates for fiscal 1952 totaled $0.61 per $100 of assessed valuation, of which $0.21 was for bond interest and retirement. This rate was levied upon both real and personal property in the district.

Lighting Districts

Major portions of three urban fringe areas and seven unincorporated urban communities were located inside 13 of the 15 lighting districts. These districts and the unincorporated urban areas served are listed below.

District	*Governing body*	*Unincorporated urban area*
Arvin	Board of supervisors	Arvin
Boron	Board of supervisors	Boron
Buttonwillow	Board of supervisors	Buttonwillow
Fellows	Board of supervisors	Fellows
Mojave	Board of supervisors	Mojave
McFarland	Board of supervisors	McFarland
McKittrick	Board of supervisors	
Randsburg	Board of supervisors	
Rosamond	Board of supervisors	Rosamond
Highland Park	Board of supervisors	Area north of Bakersfield (Oildale)
North of River Special Road and Maintenance District	Board of supervisors	
Oildale	Board of supervisors	
Hillcrest	Board of supervisors	Portion of area east of Bakersfield
La Cresta	Board of supervisors	Portion of area northeast of Bakersfield
Taft Heights	Board of supervisors	Area southwest of Taft (Taft Heights)

Only about 3 percent of the total of assessed valuations outside cities were included within lighting district boundaries. Thus some of the most significant unincorporated areas in the county were not included in such districts. These were the Bakersfield fringe areas of South and West Bakersfield; the Taft fringe areas of Ford City and South Taft; and the communities of Lamont and Ridgecrest.

The assessed valuations of lighting districts ranged from $5,858,020 in the North of River Special Road and Maintenance District to $81,170 in the McKittrick Lighting District. Aggregate expenditures for maintenance and operation were estimated at $38,038. The largest expenditure was $13,044 for the North of River District, and the smallest amounted to $334, for the McKittrick District. Property tax rates for 1951-52 ranged from $0.46 per $100 of assessed valuation in the McFarland District to $0.07 in the Randsburg District.

All of the lighting districts, with the exception of the North of River Special Road and Maintenance District, were established under Section 19030 of the Streets and Highways Code, for the purpose of installing and maintaining a street lighting system on public highways for better protection of their residents. The North of River District was formed pursuant to Sections 27 and 1550.0 of the Streets and Highways Code, for the same purpose. The Kern County Board of Supervisors is the governing body of all lighting districts in the county.

Hospital Districts

The two hospital districts in Kern County were formed pursuant to Sections 32000 to 32312 of the Health and Safety Code. They are empowered "to establish, maintain and operate one or more hospitals situated within the territorial limits of the district." The West Side Hospital District was formed in August, 1947, and has only recently started to operate a hospital with about a 70-bed capacity. This district is centered around Taft, but it also includes the Taft fringe areas, the City of Maricopa and the communities of Fellows and McKittrick. The tax rate for fiscal 1952 was $0.15 per $100 of assessed valuation, of which $0.03 was for bond retirement and interest. The Tehachapi Valley Hospital District was formed in September, 1949, but it does not as yet have a functioning facility.

These two districts include approximately 38 percent of the total of county assessed valuations outside cities. However it is estimated that less than 1 percent of their tax base lies within urban areas, and the population in the areas affected amounts only to about 5 percent of the total population of the unincorporated area of Kern County.

Recreation Districts

The two recreation districts have a combined valuation of $93,442,200, but very little of this lies within unincorporated urban areas. The Wasco Public Recreation District is coterminous with the Wasco School District and includes the City of Wasco, but no unincorporated urban areas. It was created under the authority of Article 2, Chapter 3, Division 5 (Sections 5431 to 5460) of the Public Resources Code, and is administered by seven trustees appointed by the board of supervisors from the voters of the district. The purpose of the district is "to maintain, improve, and keep in a sanitary condition, all community parks, community beaches, community recreational grounds, and community buildings within the district." Actual expenditures of this district in fiscal 1951 amounted to $27,528. The total tax rate applied by the district in fiscal 1952 was $0.22 per $100 of assessed valuation. Of this total $0.16 was for bond interest and retirement.

The West Side County and City Park, Recreation and Parkway District was formed pursuant to Article 1, Chapter 3, Division 5 (Sections 5630 to 5667) of the Public Resources Code. This district is governed by a board of three members, one of whom is appointed by the City Council of Taft, while the other two members are appointed by the board of supervisors. In contrast to the Wasco District, the purpose of the West Side District is ''to secure, maintain and operate an adequate system of parks, recreation grounds, and parkways within the district.'' Expenditures for fiscal 1951 totaled $21,834, while the total tax rate for fiscal 1952 was $0.03. The West Side District comprises four school districts, viz., Taft, Elk Hills, Midway and Olig. The Taft fringe and the community of Fellows are therefore included within its boundaries.

Public Utility Districts

The nine public utility districts were organized pursuant to Act 6393 of the General Laws, 1921. All of these districts are governed by locally elected boards of directors. The functions authorized by the 1921 act were quite broad in scope, including light, power, heat, water, communication, transportation and refuse collection and disposal. Most of the districts formed in Kern County perform only the water supply function. The Highland Park and Shafter Public Utility Districts are inactive. The districts and the unincorporated urban areas included therein are listed below.

District	*Governing body*	*Unincorporated urban areas*
Southern San Joaquin Municipal Utility	Local board	McFarland
Frazier Park	Local board	
Lamont	Local board	Lamont
Mojave	Local board	Mojave
Plainview	Local board	
Wasco	Local board	None
Highland Park Highland Park, Annex No. 2	Local board	Portion of area north of Bakersfield (Oildale—part)
Shafter	Local board	Portion of Shafter fringe

The aggregate assessed valuation of utility districts amounted to $17,438,885 in 1951. Of this total, the valuation outside cities amounted to $9,671,555. The latter figure was about 2 percent of the total valuation outside cities. As the tabulation above shows, only a few of the unincorporated urban areas were included within district boundaries. Aggregate expenditures of $102,007 in fiscal 1951 by the seven active districts represented an average expenditure per district of about $14,570. Tax rates for 1951-52 ranged from a low of $0.50 per $100 of assessed valuation in the Southern San Joaquin District to a high of $4.91 in the Plainview District.

In addition to the nine already discussed, there are two inactive public utility districts. The Bakersfield Municipal Water District, which includes only the City of Bakersfield, is inactive and may eventually be dissolved. The Storm Waters District No. 1, which embraces a section of northeast Bakersfield and part of the unincorporated area of La Cresta adjacent to this city, has been inactive since its formation. The explanation for this inactivity is that its assessed valuation of $1,339,550 is too small a tax base to support necessary operations.

County Services Provided to Special Districts

In Kern County, as in the other counties studied, the county performs certain administrative services for special districts. These include the services of members of the board of supervisors, as well as those provided by various administrative departments, such as assessing, tax collecting, accounting, personnel, auditing and various technical functions. Attaching cost figures to these services would, in most cases, involve purely arbitrary judgments which in large part would be indefensible. In fact the laws relating to the organization of most types of special districts provide that the county shall perform certain overhead services for special districts and make no mention of compensation therefor.

For those special districts which have governing bodies other than the county board of supervisors, a charge is made for legal services provided by the district attorney. The charges are fixed by an estimate of the cost of such services, and they occur most frequently in connection with the two hospital districts and the one sanitary district. In addition to general overhead services, the county provides technical assistance to some special districts. The department of public works is reported as undertaking fact-finding and engineering work principally for the sanitation districts. While no charge is made for these services, it is further reported that this service to sanitation districts requires the equivalent of one and a half to two full-time positions in the department of public works and amounts to about $6,000 per year.[3]

CITY SERVICES EXTENDED TO OUTSIDE AREAS

Table 10 shows the total and per capita expenditures of cities in Kern County for certain selected services involved in the present study. These services relate to the selected county services discussed in a later section of this chapter. Table 11 shows the city services extended to outside users and whether these service extensions are made on a charge or free basis. Four city services were rendered without charge during 1951. These were fire protection, care of prisoners, office facilities and recreation services. Fire and prisoner services were extremely limited, and were for the most part offset by equivalent, or more than equivalent, amounts of county fire and police services inside cities.

All but one city, Maricopa, provided recreational services free of charge, and the recreational facilities of the City of Bakersfield especially experienced considerable use by noncity residents. However, because

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[3] *Ninth Progress Report: Public Works,* Louis G. Kroeger and Associates, December, 1951, p. 40.

TABLE 10

KERN COUNTY
CITY EXPENDITURES FOR SELECTED FUNCTIONS [a]
1950-51

City	General government		Planning		Police protection[b]		Fire protection[b]		Dog pound		Health		Streets[c]		Recreation[d]	
	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita
Bakersfield	$225,094	$5.96	$8,502 [e]	$0.23	$282,919 [f]	$7.49	$496,666 [e]	$13.14	$2,925 [e]	$0.08	$2,400	$0.06	$389,789	$10.32	$127,095	$3.36
Delano	29,848	3.42	--------	------	53,009 [e]	6.08	24,797 [e]	2.84	--------	------	--------	------	55,861	6.41	8,280	0.95
Maricopa	2,484	3.10	--------	------	3,046	3.81	3,215	4.02	--------	------	--------	------	2,215	2.77	240	0.30
Shafter	14,355	6.50	--------	------	30,893	14.00	4,095	1.86	--------	------	--------	------	49,415	22.39	5,965	2.70
Taft	20,911	5.94	--------	------	46,277	12.48	23,033	6.21	--------	------	--------	------	37,724	10.18	4,251	1.15
Tehachapi	7,545	4.48	--------	------	9,363	5.56	3,311	1.96	--------	------	--------	------	7,847	4.66	973	0.58
Wasco	12,554	2.24	--------	------	32,472 [e]	5.81	11,519 [e]	2.06	--------	------	--------	------	63,679	11.39	--------	------
Total[g]	$312,791	$5.44	$8,502	$0.23	$457,979	$7.97	$566,636	$9.86	$2,925	$0.08	$2,400	$0.06	$606,530	$10.55	$146,804	$2.55

NOTES:

[a] Includes operation, maintenance and capital outlay.

[b] For Maricopa, Shafter, Taft, and Tehachapi, the amount shown under outlays in the protection to persons and property classification is divided equally between police and fire protection.

[c] Includes engineering, administration, construction, and maintenance, acquisition, lighting, and other.

[d] Includes recreational structures, parks and playgrounds, other, and outlays.

[e] Data are from the financial statement of the various cities.

[f] Data are from the financial statement of the City of Bakersfield and exclude traffic detail expenditures.

[g] Per capita figures for all cities together are calculated only on the basis of cities having expenditures for the particular function involved.

SOURCE: Unless otherwise indicated, data are from the "Annual Report of Financial Transactions of Municipalities and Counties of California for the Fiscal Year Ending June 30, 1951," Office of the State Controller, Sacramento, Tables 4 and 7.

the county participates in the cooperative financing arrangements entered into by the cities and the school districts in support of community recreation programs, one may question whether this outside use can be characterized as a "free ride" enjoyed by others at city expense.

City Services Involving Charges

Utilities are the sole service for which charges are made. Bakersfield, Delano and Tehachapi provide outside utility services, but only Bakersfield serves a significant number of customers. Tehachapi serves five outside water connections, but charges outside customers higher rates than city residents. Delano serves four outside sewer connections and levies a $2 per month special charge therefor. Bakersfield provides sewage interception and disposal for a considerable number of nonresidents, both directly and through the Alta Verde and Union Avenue Sanitation Districts. In both cases, the rates charged are somewhat higher than those paid by residents of the City of Bakersfield, in order to cover the higher service costs. In addition, Bakersfield supplies water and sewer service at regular rates to 63 housing units operated by the Kern County Housing Authority and to 17 units of a federally operated veterans' housing project.

City Services Provided Without Charge

General Government. Bakersfield provided space in its city hall for the justice court, without charge to the county. Taft furnished free space and telephone service to the sheriff's substation, in return for which the county provided Taft with police radio equipment. The City of Tehachapi provided free space in its city hall for the justice of the peace.

Protection to Persons and Property. No appreciable amounts of city law enforcement services were rendered to noncity residents or agencies, with the possible exception of county prisoners held by Delano. Although most cities stated that they had infrequently assisted the sheriff or the state highway patrol, upon request, no city reported any outside responses during 1951. No county-city mutual aid agreements exist concerning police protection, although there is an understanding, described by the sheriff as recognition of the "usual courtesies," that the cities will respond with their police personnel when called upon by the sheriff

TABLE 11

KERN COUNTY
CITY SERVICES PROVIDED TO NONCITY RESIDENTS AND TO OTHER GOVERNMENTAL UNITS
1951

Cities	General government		Care of county prisoners		Fire protection		Utilities		Recreation	
	Charge	No charge	Charge	No charge	Charge	No charge	Charge	No charge	Charge	No charge
Bakersfield		x				x	x			x
Delano				x		x	x			x
Shafter										x
Taft		x		x		x				x
Tehachapi		x		x		x	x			x
Wasco						x				x

SOURCE: Questionnaires completed by city officials.

for assistance outside city limits. Conversely, the sheriff cooperates by responding to calls from cities. While it appears that city police rarely go outside the corporate limits of cities, a study of the sheriff's operations, on the other hand, indicates that the county is quite active inside cities with respect to certain law enforcement functions.[4]

With respect to fire protection, five cities report a limited number of city equipment runs to outside fires. All the cities have formal or informal mutual aid agreements with the county, whereby each party to the agreement pledges to respond to fires within the other's jurisdiction. The response is ''automatic'' on both sides, except that the county does not fight fires in Bakersfield unless requested. The agreements contemplate that the costs of such mutually rendered services will cancel out, and that every area will benefit through a more efficient system of response to fires. The area included within a five-mile radius of each city is in most cases regarded as the mutual aid area for the city, except that in the case of Taft the radius includes approximately 20 miles.

In 1951 Maricopa and Shafter reported no city responses to outside fires. Other cities, however, reported making outside runs. Bakersfield made 14 runs; Delano reported four; Taft reported three; Tehachapi reported three; and Wasco reported one outside response. Most of the city departments are equipped to fight grass and oil fires, which frequently occur in the outside areas. There is, of course, reciprocity with the county fire department, which automatically answers the first alarm inside all cities except Bakersfield, where it does not respond unless requested to do so. The county fire department reported a total of 147 responses to fires of various types inside cities in 1951. The benefits accruing to both city and noncity residents through the mutual aid arrangements seem to be generally recognized and apparently outweigh any overages or shortages of fire protection provided by any of the agreeing agencies.

Utilities. The only case of a free city service in this category occurs in the City of Delano, which supplies water to the adjacent county airport and county park, without charge.

Recreation and Parks. Four cities, Bakersfield, Shafter, Taft and Tehachapi, reported that about 50 percent of those who used city recreational facilities were noncity residents. Delano and Wasco claimed very little outside use, and the City of Maricopa had no recreational facilities. Except for the City of Bakersfield, the facilities in question consisted of one or two blocks of park area, with limited equipment, if any. The 1951 outlays on parks and recreation for Shafter and Taft were each under $6,000, while the City of Tehachapi spent less than $1,000. The City of Bakersfield, however, has over 70 acres of parks with considerable amounts of equipment and special recreational facilities, and in 1951 it spent over $127,000 on the operation of its parks.

COUNTY SERVICES

County Expenditures and Revenues

Expenditures in the amount of $23,969,230 were budgeted by Kern County in 1951-52. Of this amount, $11,646,546, or 46.3 percent, was to be raised by ad valorem taxes on property, and the remainder was to be derived from state and federal subventions and grants, administrative receipts and available balances. Figure 6 shows the distribution of county expenditures by function and the distribution of funds available to meet these expenditures, by source.

Table 12 presents some comparisons of county per capita expenditures. Kern County is compared with eight other counties similar in population size. While it ranks second in absolute amount of budgeted expenditures in 1951-52, it far outranks all these counties in amount of budgeted expenditures per capita. The closest figure to the $104.98 per capita expenditure of Kern County is that reported for Fresno County, viz., $98.60.

Budgeted expenditures for 1951-52 are classified by general function in Table 13 below. The first column shows the actual amounts budgeted for each function, while the third column presents the amounts spent on these broad functions arbitrarily adjusted to facilitate inter-county comparisons. Charities and corrections accounted for 48.5 percent of the total budget in this fiscal year, followed by protection (13.1 percent); general government (11.4 percent); and roads and bridges (10.1 percent). These four functions account for more than 80 percent of Kern County's expenditures in fiscal 1952.

TABLE 12

KERN COUNTY
TOTAL AND PER CAPITA EXPENDITURES FOR KERN COUNTY AND SELECTED COUNTIES OF COMPARABLE SIZE

1951-52

	Expenditures	
County	*Total amount*	*Per capita amount*
KERN	$23,969,230	$104.98
Fresno	27,265,380	98.60
San Joaquin	16,711,495	83.25
San Bernardino	22,883,427	81.25
Orange	16,854,297	77.95
Santa Clara	21,754,697	74.87
Sacramento	20,265,424	73.12
Contra Costa	19,425,648	64.97
San Mateo	12,668,474	53.76

SOURCE: Population data from Table 1; expenditure data from the various county budgets.

This total budget figure of $23,969,230 does not, however, represent the actual total cost of these services to the citizens of Kern County. Many county departments, such as the recorder and the building inspector, collect fees from individuals for specific services, and these reduce the over-all cost of county government. Moreover, the county gets revenues from services rendered to other governmental units, such as school districts or the State, and these serve to reduce the over-all cost of county government. These related or associated revenues amounted to $602,548 in 1951-

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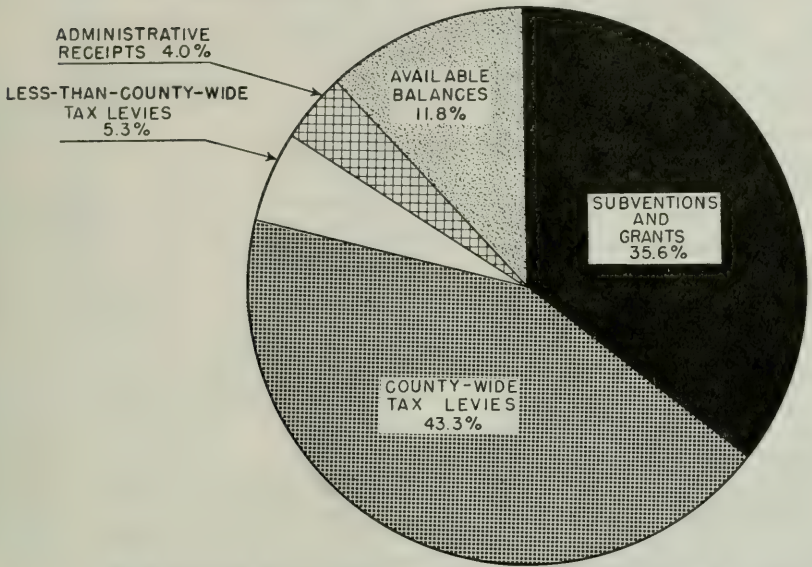
[4] The sheriff's operations are examined in detail in a later section of this chapter dealing with this service.

FIGURE 6

KERN COUNTY
DISTRIBUTION OF REVENUES AND EXPENDITURES
1951-52

REVENUES BY GENERAL SOURCE



EXPENDITURES BY GENERAL FUNCTION

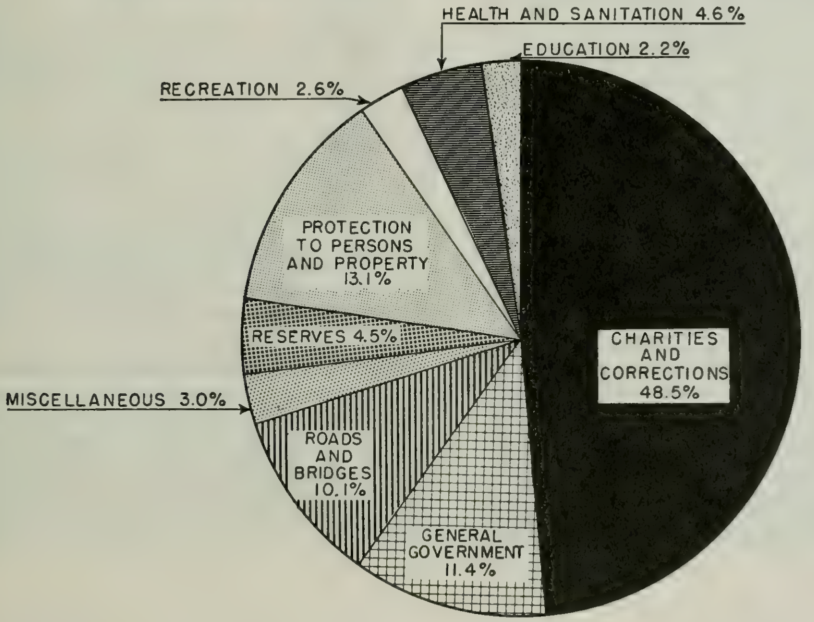


TABLE 13

KERN COUNTY
COUNTY EXPENDITURES BY GENERAL FUNCTION

1951-52

General function	Expenditures: Budget amounts	Expenditures: Percent of total	Expenditures: Adjusted budget amounts[a]	Expenditures: Percent of total
General government	$2,031,163	8.5	$2,736,927	11.4
Protection to persons and property	3,141,099	13.1	3,141,099	13.1
Health and sanitation	1,091,903	4.6	1,091,903	4.6
Roads and bridges	2,418,680	10.1	2,418,680	10.1
Recreation	629,087	2.6	629,087	2.6
Charities and corrections	11,637,405	48.5	11,637,405	48.5
Education	516,128	2.2	516,128	2.2
Interest and debt retirement	none	---	none	---
Reserve funds	575,000	2.4	1,075,000[b]	4.5
Miscellaneous	1,928,765	8.0	723,001	3.0
Total	$23,969,230	100.0	$23,969,230	100.0

NOTES:
[a] Adjusted to a standard functional classification adopted in this study for purposes of making intercounty comparisons.
[b] Includes accumulative capital outlay fund of $500,000.
SOURCE: "County Budget for the Fiscal Year Ending June 30, 1952," County of Kern.

TABLE 14

KERN COUNTY
COUNTY REVENUES AND BALANCES

1951-52

Source	Amount	Percent of total
Property taxes	$11,656,811	48.6
Basic county-wide ad valorem tax	10,368,885	43.3
Road tax, outside cities	658,281	2.7
Structural fire protection, outside	619,380	2.6
Levies of previous years	9,965	[a]
Mandatory special taxes	300	[a]
Subventions and grants	$8,529,767	35.6
State	5,352,147	22.3
Federal	3,177,620	13.3
Administrative receipts	$954,327	4.0
Licenses and permits	85,000	0.3
Fines and penalties	272,000	1.1
Privileges	35,000	0.2
Fees and commissions	138,900	0.6
Rent, interest, and sales[b]	161,573	0.7
Special services	135,000	0.6
Intergovernmental services	105,294	0.4
Miscellaneous	21,560	0.1
Available balances	$2,828,325	11.8
Total	$23,969,230	100.0

NOTES:
[a] Less than one-tenth of 1 percent.
[b] Includes $8,485 resulting from redemptions, sales, and rentals involved in tax levies of prior years.
SOURCE: "County Budget for the Fiscal Year Ending June 30, 1952," County of Kern.

Subvention	Amount	County fund to which allocated
Motor Vehicle Fund and Motor Vehicle Fuel Tax Fund	$1,200,000	Special road Improvement
Motor Vehicle License Fee Fund (in-lieu tax)	400,000	County
Alcoholic beverage license fees	65,000	County
Total	$1,665,000	

52, and hence county expenditures may be reduced from $23,969,230 to $23,366,682.

The revenues and funds available to meet these expenditures as set forth in the budget for 1951-52 are shown in Table 14 below. Property taxes were expected to bring in 48.6 percent of the total needed; subventions and grants, 35.6 percent; administrative receipts, 4 percent; and available balances, 11.8 percent.

State and federal subventions and grants were expected to produce more than one-third of county revenues in fiscal 1952. About 40 percent of these subventions were received from the Federal Government for categorical aid programs and forest service. The remaining 60 percent derived from the State Government. Of the total of state subventions and grants, those received from state taxes on motor vehicles and vehicle fuel, and alcoholic beverage licenses may be traced to show the relative shares paid by Kern County residents. On the basis of the distribution of population in 1950, it may be estimated that the share of motor vehicle, vehicle fuel and in-lieu tax payments paid by city residents amounted to $403,200. The alcoholic beverage license fees may be considered as paid entirely by the residents of unincorporated areas.

With respect to property taxes, current county-wide levies accounted for nearly half of the revenues of the county in fiscal 1952. The current county-wide property tax revenue was estimated at $10,368,885. Since this tax is obviously paid in proportion to the distribution of assessed valuations and since incorporated cities contain 12.5 percent of the county's total assessed valuation in 1951-52, it may be estimated that residents of cities paid approximately $1,296,000. The road tax was paid entirely by noncity residents, and the amount of $658,281 estimated as revenue from this tax was placed in the special road improvement fund. Structural fire protection taxes were levied upon the entire county assessment roll except the City of Bakersfield. Thus 90.3 percent of the total county assessed valuation was included in the tax base. Residents of cities other than Bakersfield, with 2.8 percent of total county valuations in 1951-52, would thus have paid an estimated $19,000.

Approximately 56 percent of the total of county revenues and balances shown in Table 15 may be considered as traceable to city and noncity taxpayers. Of this total of traceable revenues ($13,311,546), it is estimated that city residents may be credited with $1,718,200, or 12.9 percent, while noncity residents may be credited with $11,593,281, or 48.4 percent. Of these various sources of county revenue, property taxes are almost entirely allocable as between city and noncity taxpayers, while only about 19 percent of the receipts from subventions and grants may be allocated between these two groups of county residents.

Table 16 shows the amounts estimated as contributed to various county funds by city and noncity residents. The traceable contributions of city residents to county funds ranged from 13.3 cents per dollar of the special road improvement fund to as low as 2.9 cents per dollar of the general reserve fund. Amounts credited to noncity residents ranged from 94 cents per dollar of the structural fire fund to 19.5 cents per county fund dollar.

TABLE 15

KERN COUNTY
TRACEABLE COUNTY REVENUE ITEMS, FUNDS TO WHICH ALLOCATED, AND AMOUNTS ESTIMATED AS PAID BY CITY AND NONCITY RESIDENTS
1951-52

		Traceable revenues as a percentage of:			*Traceable revenues estimated as paid by city residents*		*Traceable revenues estimated as paid by noncity residents*	
Traceable revenue items and funds to which allocated	*Traceable current revenues*	*Total revenues and balances*	*Revenue item*	*Fund requirement*	*Amount*[a]	*Percent of fund requirement*	*Amount*[a]	*Percent of fund requirement*
County-wide property taxes								
County fund	$1,955,058	8.2	18.9	18.3	$244,400	2.3	$1,710,700	16.0
Salary fund	6,979,593	29.1	67.3	90.6	872,400	11.3	6,107,200	79.3
Subtotal	$8,934,651	37.3	86.2	48.6	$1,116,800	6.0	$7,817,900	42.6
Advertising fund	56,844	0.2	0.5	80.3	7,100	10.0	49,700	70.3
Permanent roads fund	120,026	0.5	1.2	83.5	15,000	10.4	105,000	73.1
County library fund	366,525	1.5	3.5	85.4	45,800	10.7	320,700	74.7
General reserve fund	91,942	0.4	0.9	23.0	11,500	2.9	80,400	20.1
Unappropriated reserve fund	174,498	0.7	1.7	99.7	21,800	12.5	152,700	87.2
County retirement reserve fund	424,399	1.8	4.1	99.9	53,000	12.5	371,400	87.4
Accumulative capital outlay fund	200,000	0.8	1.9	40.0	25,000	5.0	175,000	35.0
Law library fund	---	---	---	---	---	---	---	---
Garage fund	---	---	---	---	---	---	---	---
Industrial farm fund	---	---	---	---	---	---	---	---
Experimental farm fund	---	---	---	---	---	---	---	---
Total—County-wide property taxes	$10,368,885	43.2	100.0	49.2	$1,296,000	6.2	$9,072,800	43.1
Less-than-county-wide property taxes								
Road tax—to special road improvement fund	$658,281	2.7	100.0	28.9	---	---	$658,281	28.9
Structural fire protection tax—to county fund	619,380	2.6	100.0	97.0[b]	$19,000	3.0	600,400	97.0
Total—Less-than-county-wide property taxes	$1,277,661	5.3			$19,000		$1,258,681	
Subventions								
Special road improvement fund	$1,200,000	5.0	100.0	52.7	$302,400	13.3	$897,600	39.4
County fund (in lieu tax)	400,000	1.7	100.0	1.9	100,800	0.5	299,200	1.4
County fund (alcoholic beverage control licenses)	65,000	0.3	100.0	[c]	---	---	65,000	---[c]
Total—Subventions	$1,665,000	6.9		55.5	$403,200	1.7	$1,261,800	5.4
Total traceable revenues	$13,311,546	55.5	100.0	55.5	$1,718,200	7.2	$11,593,281	48.4
Percent of traceable revenues	100.0				12.9		87.1	

NOTES:

[a] Allocations credited to city and noncity residents from the ad valorem revenues were computed on the basis that 12.5 percent of the 1951-52 assessed valuations was inside incorporated cities; from subventions, on the basis that 25.2 percent of the population in 1950 was inside incorporated cities; the alcoholic beverage control subvention is entirely credited to unincorporated areas. Totals may not add due to rounding.

[b] Although revenues from the $0.14 tax rate for structural fire protection outside the City of Bakersfield are placed in the County Fund, requirements for structural fire protection are calculated separately. Collections are shown as a percentage of the separate requirement figure which amounts to $638,620.

[c] Less than one-tenth of 1 percent.

SOURCE: "County Budget for the Fiscal Year Ending June 30, 1952," County of Kern.

Services Provided by Kern County

The following sections of this chapter examine certain selected county services, primarily for the purpose of ascertaining whether Kern County provides more of these services, or provides them on a high standard of performance, in some county areas than in others. The sections are listed by general budget classification, but within each section only the particular services of concern to this study are examined.

General Government Services. This broad category of county service includes almost 30 different activities which in 1951-52 involved a total budgeted expenditure of $2,736,927.[5] Fees and other revenues related to these activities amounted to $120,900, reducing budgeted expenditures for general government to a net total of $2,616,027. Most of the expenditures in this category derive from the county and salary funds.

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[5] See Appendix C, Table 1 for a detailed list of these services.

TABLE 16

KERN COUNTY
TOTAL REQUIREMENTS AND ESTIMATED TRACEABLE AMOUNTS OF SELECTED FUNDS
1951-52

		Estimated traceable amounts			*Estimated traceable amounts in cents per fund dollar*		
Fund	*Total current fund requirements*	*Total*	*Credited to city residents*	*Credited to noncity residents*	*Total*	*Credited to city residents*	*Credited to noncity residents*
County fund	$10,663,333	$2,420,100	$345,200	$2,074,900	22.5	3.2	19.5
Salary fund	7,706,144	6,979,600	872,400	6,107,200	90.5	11.3	79.2
Permanent roads fund	143,660	120,000	15,000	105,000	83.5	10.4	73.1
County library fund	429,020	366,500	45,800	320,700	85.5	10.7	74.8
General reserve fund	400,000	91,900	11,500	80,400	23.0	2.9	20.1
Unappropriated reserve	175,000	174,500	21,800	152,700	99.8	12.5	87.3
Accumulated capital outlay fund	500,000	200,000	25,000	175,000	40.0	4.0	35.0
Special road improvement fund	2,275,020	1,858,281	302,400	1,555,881	81.7	13.3	68.4
County fund—structural fire [a]	638,620	619,400	19,000	600,400	97.0	3.0	94.0

NOTE: [a] While the requirements and revenues for structural fire protection are placed in the County Fund, they are separately calculated for areas outside the City of Bakersfield.
SOURCE: "County Budget for the Fiscal Year Ending June 30, 1952," County of Kern, and data in Table 14.

For the most part the services provided under this heading are county-wide in nature or they are necessary to the performance of other functions and services which are county-wide. With respect to several of these items, however, a difference of opinion concerning the extent to which they benefit all county residents requires that they be studied further.

The Board of Supervisors. In fiscal 1952, a total of $144,670 was budgeted for the Kern County Board of Supervisors. The distribution of these expenditures by funds is shown below.

Fund	*Budgeted expenditures*	*Percentage*
County	$41,115	28.4
Salary	103,555	71.6
Total	$144,670	100.0

Figure 7 shows the boundaries of the five supervisorial districts and the cities, unincorporated urban areas and rural areas and communities included in each district. The following tabulation presents the population of each district in 1950. Data are from the U. S. Bureau of the Census.

District	*Total population*	*Population of incorporated cities*	*Percent of total*	*Population of unincorporated areas*	*Percent of total*
No. 1	50,482	16,516 [a]	32.7	33,966	67.3
No. 2	64,442	8,185 [b]	12.7	56,257	87.3
No. 3	75,640	10,354 [c]	13.7	65,286	86.3
No. 4	19,815	4,507 [d]	22.7	15,308	77.3
No. 5	17,930	17,930 [e]	100.0	---	---
Totals	228,309	57,492	25.2	170,817	74.8

[a] Delano, Shafter and Wasco.
[b] Tehachapi plus the southern part of incorporated Bakersfield (est.).
[c] Northern and eastern part of incorporated Bakersfield (est.).
[d] Maricopa and Taft.
[e] Central and western portions of incorporated Bakersfield.

All districts except District No. 5 show a much larger proportion of total population in the unincorporated areas. This results from the fact that this district lies in the central and western sections of the City of Bakersfield. District No. 1 includes the Cities of Shafter, Delano and Wasco and hence ranks second in the percentage of population residing in cities. District No. 2 includes the City of Tehachapi and the southern section of the City of Bakersfield, while District No. 3 also includes a part of Bakersfield, to the north and east. District No. 5 includes the cities of Maricopa and Taft.

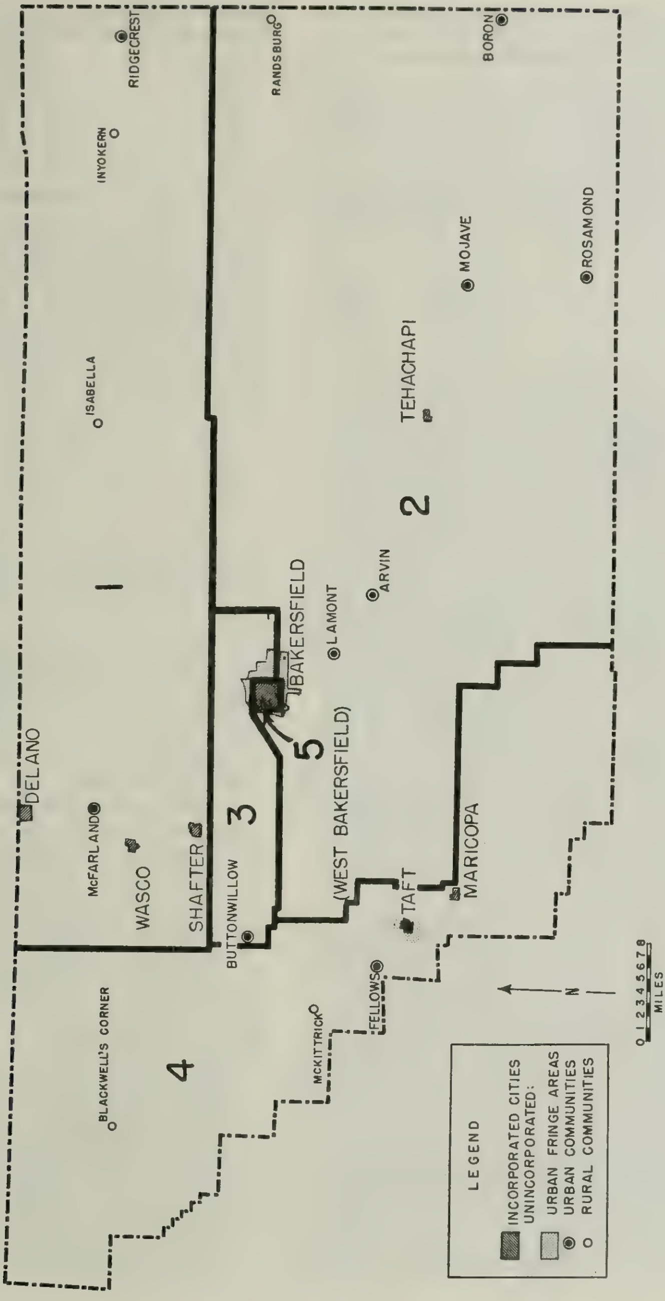
It would be extremely difficult to present any kind of an analysis that would be sensible with respect to the distribution of the costs of the board of supervisors between incorporated and unincorporated areas. In fact, it is likely that this county expenditure is in the nature of a "fixed cost" which would vary but little within the existing limits of the volume of municipal services provided to unincorporated urban areas. This situation, obviously, might change, but at present the results of this inquiry indicate that the services of the board of supervisors are county-wide and confer no special benefits on the residents of particular types of areas.

The County Surveyor. Budgeted expenditures for the county surveyor in 1951-52, distributed by fund, are shown below.

Fund	*Budgeted expenditures*	*Percentage*
County	$8,583	11.6
Salary	65,565	88.4
Total	$74,148	100.0

Kern County is one of the 30 counties in the State which have not combined the surveyor's office with any other, such as the road commissioner or county engineer. The surveyor's duties include mapping and engineering operations which usually are conducted outside the limits of the incorporated cities of Kern County. This department also performs engineering work related to all county public works, except streets, highways and bridges, which fall under the administration of the road commissioner. These activities are,

FIGURE 7
KERN COUNTY
SUPERVISORIAL DISTRICTS



however, county-wide in nature and cannot be considered as being provided for the special benefit of any one particular group of residents in the county.

THE PLANNING COMMISSION. The Planning Commission of Kern County provides no direct services inside cities. Its major efforts in recent years have been concerned with developing zoning and subdivision regulations in the unincorporated areas of the county. Budgeted expenditures in 1951-52 amounted to $37,438. The distribution of these expenditures by fund is shown below.

Fund	*Budgeted expenditures*	*Percentage*
County	$6,333	16.9
Salary	31,105	83.1
Total	$37,438	100.0

The Kern County Planning Commission has developed a generalized master land use plan and a county highway master plan. As of March 1952, 434 square miles, or about 5 percent of the county's area, had been zoned under either a "comprehensive" or "interim" zoning classification. The only area comprehensively zoned is a narrow strip bordering both sides of Highway 99, from Delano in the north to the southern boundary of the county. Interim zoning ordinances apply to the Orange Belt Highway; major portions of the Tehachapi-Mojave Highway; Lerdo Highway; South Chester Avenue; Pierce Road; and the Gardner Field Roads. In addition to this highway zoning, seven urban areas in the Bakersfield fringe, the urban community of Arvin and the Muroc Air Base area have been placed under interim zoning ordinances. It is planned to replace these interim zoning regulations with comprehensive ordinances as rapidly as the planning commission's staff can complete the necessary research. In addition to these zoning activities, the commission has also prepared, and the supervisors have enacted, regulations pertaining to subdivisions outside cities in Kern County.

While the county provides no direct planning services for the cities, it does cooperate with them in discussing problems of mutual interest. The City of Bakersfield and the county have informally set up a joint city-county commission consisting of two planning commissioners from each unit of government, plus both planning staffs. This commission facilitates the handling of the common planning problems which frequently arise.

The bulk of the planning commission's expenditures must, however, be considered as not providing *direct* services to the residents of the incorporated cities. Thus the entire budget figure is considered as the amount spent by the county on a service which was less than county-wide in its benefits. City contributions to these expenditures for the county planning commission in 1951-52 are estimated at $3,720. This amount is shown by fund in the tabulation below.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
County	$6,333	$200
Salary	31,105	3,520
Total	$37,438	$3,720

[a] Calculated according to the fund analysis shown in Table 16.

THE BUILDING AND SAFETY DEPARTMENT. Total budgeted expenditures for this service in 1951-52 amounted to $100,470. Net county expenditures, however, amounted to only $15,470 after allowing for $85,000 in revenues which this department was expected to collect. Most of this sum was to be used for the enforcement of building code regulations adopted by the board of supervisors. These regulations apply only to buildings located in unincorporated areas. Nineteen building inspectors were required for enforcement activity.

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentages*
County	$17,945	$2,760	21.7
Salary	82,525	12,710	78.3
Total	$100,470	$15,470	100.0

The net expenditures of $15,470 must be classified as less than county-wide since this service was provided only to areas outside cities. The city share of this cost may be estimated as follows.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
County	$2,760	$90
Salary	12,710	1,440
Total	$15,470	$1,530

[a] Calculated according to the fund analysis shown in Table 16.

GENERAL GOVERNMENT SERVICES TO CITIES. It has already been stated that the bulk of county operations under the general government classification are county-wide in nature and thereby are available to city residents on the same basis as to noncity residents. By law, however, a county may provide services to other units of government and make charges therefor. While Kern County provides some general government services to cities, such as assessment and tax collection, it makes no charges for such services. The county provides both of these services for the City of Wasco, and collects taxes for the five cities of Delano, Maricopa, Shafter, Taft and Tehachapi.

Protection to Persons and Property. Budgeted expenditures for this general category of government service totaled $3,141,099 in 1951-52, but various receipts associated with the services included in this category reduced the budgeted amount to a net expenditure of $2,820,451.[6] Little question can be raised about many of the services provided by the county in this functional area, since they are either performed on a county-wide basis or they clearly confer direct benefits upon the residents of all areas, incorporated or unincorporated. These include the custody of prisoners, for which the county charges cities for holding prisoners arrested on city law violations; agricultural and wildlife services; inspection of weights and measures; inspection of milk and livestock; radio communication; civil defense; and official recording. However, certain aspects of law enforcement and fire protection merit further examination.

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[6] See Appendix C, Table 1 for a detailed listing of county budget items under this heading.

Law Enforcement. Budgeted expenditures for the sheriff and constables in 1951-52 amounted to $540,215 and $53,950 respectively. Expenditures for these two law enforcement activities thus totaled $594,165. Net expenditures, after taking account of related revenues from intergovernmental services, amounted to $592,165. These expenditures, distributed by fund, are shown below.

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentages*
Sheriff:			
County	$118,350	$117,910	21.9
Salary	421,865	420,305	78.1
Total	$540,215	$538,215	100.0
Constables:			
County	$7,450		13.8
Salary	46,500		86.2
Total	$53,950	$53,950	100.0
Combined total	$594,165	$592,165	

The sheriff reported a total complement of 107 officers and 19 clerical and maintenance employees, all on a full-time basis. In addition, six deputies were employed on a part-time basis. The distribution of the officer personnel was as follows:

Administration		7	(includes 4 division heads and one bureau head)
Headquarters division		15	
Bailiffs	4		
Warrants	4		
Desk	4		
Court detail	2		
Transportation	1		
Civil division		4	(process servers)
Identification bureau		4	
Jail division		11	
Criminal division		62	
Other:		4	
Vice	2		
Parole	1		
Training	1		
Total		107	

The City of Bakersfield uses the county identification bureau and provides the services of a police lieutenant and a clerk to the bureau. This, of course, offsets the costs of identification and records work performed in connection with the enforcement of city laws. Insofar as the headquarters division deals with matters relating to any division other than the criminal division, its activities may be classified as county-wide. The same principle also applies to the administrative staff, insofar as the activities of the sheriff and the undersheriff are concerned. Other administrative staff members head the respective divisions. Although no accurate estimate is available as to man-hours involved, it seems reasonable to assume that one-half of the time of the headquarters and administrative staffs is devoted to the criminal division, and hence does not represent county-wide activity. On the basis that the headquarters and administrative staffs constitute about 17 percent of all sheriff's department officer personnel, it may be estimated that they involve the same proportion of the net budget of the sheriff's department, or about $90,400. One-half of this amount, $45,200, would then represent the expenditure which may be allocated to the criminal division.

The vice and narcotics details operate without regard to city boundaries, and the parole and training officers' duties may also be classified as county-wide.

The criminal division performs the bulk of law enforcement work. Its complement of 62 officers represents 58.9 percent of the total officer personnel under the sheriff, and it is assumed here that this division involves a similar proportion of the total net outlay, or about $317,000. Adding the $45,200 prorated from the headquarters and administrative staffs results in an estimated expenditure of $362,200 for this division during fiscal 1952.

Of the 62 officers in the criminal division, 41 operate from the sheriff's headquarters station inside the City of Bakersfield. Most of their efforts relate to law enforcement in the fringe areas around Bakersfield. However, seven officers have special assignments that may take them anywhere in the county, as follows:

Homicide detail	2
Auto theft and junk detail	1
Juvenile detail	2
Check investigation detail	1
Cattle theft detail	1

Operations of the Bakersfield headquarters station are on a three-shift basis, as shown below.

Day shift: 7 a.m. to 3 p.m.
- 14 Officers:
  - 1 Captain
  - 13 Deputies—Functions: patrol and investigation

Afternoon shift: 3 p.m. to 11 p.m.
- 16 Officers:
  - 1 Lieutenant
  - 15 Deputies—Functions: patrol and investigation

Night shift: 11 p.m. to 7 a.m.
- 11 Officers:
  - 1 Lieutenant
  - 10 Deputies—Function: patrol

In addition to these assignments, the afternoon and night shifts share one additional relief officer. Sixteen of the daytime deputies are investigators and combine both investigation (i.e., follow-up) and patrol functions. A count of the number of first calls made by investigators during one month showed a total of 230, or an average of 14.3 cases per man per month.[7] For the same period, the patrol division was found to make 450 first calls, averaging 2.1 cases per car shift.[8] This division answered almost twice as many calls as the investigators.

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[7] *Seventh Progress Report: Public Safety,* Louis J. Kroeger and Associates, December, 1951, p. 5.

[8] *Ibid.*

The sheriff reported that the urban fringe of Bakersfield is one of four areas in the county which receive 24-hour patrol service. The others include the unincorporated urban areas around Taft; the Arvin-Lamont area; and the community of McFarland. Patrol service involves prowl-car operations within prescribed areas, with cars following fairly definite routes. Four prowl cars, each with two men, are assigned to specific areas around Bakersfield. They respond to radio calls from headquarters, and most of their case load is a result of such calls rather than of incidents observed directly by the patrolling officers. The sheriff has no foot patrols or traffic control operations anywhere in the county. Daytime operations in the Bakersfield area are a combination of patrol and investigation work, the latter consisting of follow-ups on cases reported to headquarters or picked up through previous patrols. Nighttime operations (after 11 p.m.) are entirely patrol. Three prowl-car deputies go as far as the Arvin-Lamont area to assist in the patrol work conducted by the resident deputies there.

The remaining 22 officers of the criminal division are assigned on a resident basis to 15 outlying locations. These assignments are shown below.

Location	*Number of full-time officers*		
Incorporated cities		7	
Taft	5		
Tehachapi	1		(plus one part-time deputy)
Wasco	1		
Unincorporated urban communities		10	
Arvin	1		(plus one part-time deputy and three prowl-car deputies)
Boron	1		
Buttonwillow	1		
Lamont	1[a]		
McFarland	1[b]		
Mojave	1		(plus one part-time deputy)
Ridgecrest	3		
Rosamond	1		
Other locations		4	
Frazier Park	1		
Glenville	1		
Greenfield	1		
Kernville	1		
Administration		1	
Total		22	

[a] The Arvin-Lamont area is also served by three prowl-car deputies from the Bakersfield station.

[b] McFarland area receives some prowl-car assistance from the Bakersfield station.

The only areas classified as urban in this study which do not have resident deputies are Fellows and the Shafter fringe, both of which are served by deputies on a call basis.

The sheriff maintains one actual substation in the office of the Taft Police Department. This substation receives desk and phone service from the city with no payment involved. The county's juvenile officer and night-desk sergeant in the Taft substation serve both the county and the city, and the City of Taft pays one-half their salaries. The sheriff estimates the population of the unincorporated area served by this substation at about 10,500, of which 9,500 live in the Taft fringe area. In addition, a certain amount of mutual aid work is performed for the Cities of Taft and Maricopa. This substation is the only resident deputy operation conducted on a 24-hour basis, although Arvin-Lamont and McFarland are supplied with 24-hour prowl service.

The other 14 outlying areas are served by resident deputies operating from their homes. Each area has one county officer, except Ridgecrest, which has three. Except in the following locations, the resident deputies perform no prowl car operations, but respond only on call:

24-hour prowl car:
Arvin-Lamont area; Taft fringe; McFarland
Less than 24-hour, but more than 12-hour prowl car:
Mojave, Ridgecrest

It is thus apparent that the criminal division operates almost entirely outside the cities of Kern County. The seven special assignment officers, involving about $40,000 of the division's total expenditures, can reasonably be considered as county-wide in their operations, which leaves approximately $322,200 which may be considered as supporting operations in the unincorporated areas only. The amounts estimated as contributed by city residents toward meeting these expenditures are shown below.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
County	$70,560	$2,260
Salary	251,640	28,440
Total	$322,200	$30,700

[a] Calculated according to the fund analysis shown in Table 16.

The question of the "level" of the services of the criminal division of the sheriff's office may well be raised here. In the tabulation below the officer personnel of the criminal division are classified according to whether they serve urban or rural unincorporated areas and the amount of $322,200 shown above as the expenditure for this division in the unincorporated areas is distributed according to the number of personnel.

Area	*1950 population*	*Personnel March 1952*	*Expenditures 1951-52*	*Personnel per 1,000 population*	*Expenditures per capita*
Unincorporated urban areas:					
Arvin-Lamont	8,578	5.5	$27,900	.64	$3.25
Bakersfield fringe	68,342	38	192,700	.56	2.82
Boron	598	1	5,100	1.67	8.53
Buttonwillow	988	1	5,100	1.01	5.16
McFarland	2,183	1	5,100	.46	2.34
Mojave	2,055	1.5	7,600	.73	3.70
Ridgecrest	2,028	3	15,200	1.48	7.50
Rosamond	550	1	5,100	1.82	9.27
Taft fringe	9,441	5.5	27,900	.58	2.96
Other urban areas (Shafter fringe and Fellows)	2,884	--	No est.	No est.	No est.
Total unincorporated urban areas	97,647	57.5	$291,700	.59	2.99
Unincorporated rural areas	73,170	6	30,500	.08	0.42
Total unincorporated areas	170,817	63.5	$322,200	.38	1.87

In the entire unincorporated area of the county, criminal division personnel amounts to .38 per 1,000 population. For the urban areas alone, it is .59, and for the rural areas alone it is .08. For specific unincorporated urban areas, the personnel ratio ranges from a low of .46 per thousand in the McFarland area to a high of 1.67 per thousand in the Boron area. The Bakersfield fringe and the Taft fringe, which have almost 80 percent of the urban population, show almost identical figures of .56 and .58 respectively. The only other large urban concentration, the Arvin-Lamont area, is not much higher, with .64 criminal division personnel per thousand population.

These figures may be contrasted with those which the Federal Bureau of Investigation reported for city police protection services, covering functions roughly comparable with those performed by Kern County's Criminal Division, except that traffic control personnel are included in the bureau's data.[9] The Federal Bureau of Investigation's figures are shown below.

	Police personnel per 1,000 population [a]
All U. S. cities	1.70
All Pacific Coast Cities	1.85
All U. S. Cities under 10,000 population	1.21
All Pacific Coast Cities under 10,000 population	1.68

[a] Figures are from "Uniform Crime Report," Vol. XXII, No. 1, 1951, issued by the Federal Bureau of Investigation. Ratios include traffic control personnel and therefore overstate the city level with respect to the county level.

Even if allowance is made for traffic control personnel reflected in the city ratios, the Federal Bureau of Investigation ratios are still considerably higher than those shown above for the major unincorporated urban areas of Arvin-Lamont, the Bakersfield fringe and the Taft fringe, which together contain 88 percent of the total population of the unincorporated urban areas in Kern County. The apparently high ratios in the small communities such as Boron, Buttonwillow, and Rosamond should not be taken to indicate a high level of law enforcement in those communities, for their crime problems are relatively minor. Resident deputies have been installed at these points mainly to deal efficiently with crime problems in a large surrounding area, involving rural populations and long driving distances.

With respect to per capita expenditures as a measure of law enforcement service levels, the figure for the entire unincorporated area was $1.87. Per capita expenditures of the criminal division for the rural population were $0.42, while those for the urban population were $2.99. Individual urban areas show per capita figures ranging from $2.34 for McFarland to $9.27 for Rosamond. The Bakersfield fringe showed the lowest per capita figure of the three major unincorporated urban areas, or $2.28; the Taft fringe came next with $2.96; and the Arvin-Lamont area was highest with $3.25.

These county figures may be compared with those already calculated for the cities of Kern County (Table 10). Per capita police expenditures for all cities were $7.97 in fiscal 1951, or more than twice the county figure in the important urban areas. A better comparison is obtained from the per capita figure for the City of Bakersfield alone ($7.49), since the calculations for this city excluded traffic control outlays.

One final item with respect to law enforcement remains to be discussed. In 1951-52 there were 17 elected constables serving the 17 judicial townships. Their chief function was to act as bailiffs for the justice courts, although according to the sheriff, about half of the constables perform some criminal work within their townships. It is estimated here that about 25 percent of the work of constables involves such criminal work, and on this basis $13,490 is estimated as the amount of expenditures involved. The share estimated as paid by city residents is shown below.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents* [a]
County	$1,860	$60
Salary	11,630	1,310
Total	$13,490	$1,370

[a] Calculated according to fund analysis shown in Table 16.

FIRE PROTECTION. Expenditures budgeted for fire protection by Kern County amounted to $1,228,116 in fiscal 1952. If related revenues of $170,000 to be received from the State on this account are considered, net county expenditures for this service amounted to $1,058,116. These expenditures are distributed by fund in the following tabulation.

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentages*
County	$225,516	$55,516	5.2
Salary	1,002,600	1,002,600	94.8
Total	$1,228,116	$1,058,116	100.0

This expenditure for fire protection in Kern County is much larger than the amount typically budgeted in other counties, and in fact, compares with the fire protection expenditures budgeted by Los Angeles County. The latter county budgeted $1,988,781 in fiscal 1952 for this service. The explanation for these wide differences in county expenditures for fire protection is largely explained by the difference in the roles played by fire protection districts. In Sacramento County, for example, most of the districts have adequate equipment and personnel and can handle the bulk of their calls without assistance. In Kern County, however, the fire protection districts exist primarily to maintain and extend water supply systems. In some districts, volunteer firemen supplement the county's fire-fighting personnel. Moreover, unusually great fire hazards exist in Kern County because of its oil and gas industry. This special hazard has undoubtedly been an important factor in the development of the county's fire-fighting policy.

In Kern, as in other counties, both the State and Federal Governments are responsible for protecting certain areas against fire. The Federal Government is entirely responsible for all federal lands, and assists financially in the protection of state and private stands of primary timber and watersheds. The State is primarily responsible for nonfederal, unincorporated lands which are classified into two zones. Zone One consists of lands producing or capable of producing forest products. Zone Two embraces all lands which might suffer excessive erosion or loss of water for irrigation, domestic and industrial use, as well as lands which are primarily range but contiguous to forest or water-shed lands.

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[9] Federal Bureau of Investigation, *Uniform Crime Report*, Vol. XXII, No. 1, 1951.

In many counties the State maintains fire-fighting forces of its own and discharges both state and federal responsibilities for fire protection. The State, of course, receives federal funds covering portions of such operations under terms of the Clarke-McNary Act. Frequently, these state units fight fires outside their responsibility zones, including structural as well as other types of fires in unincorporated areas, and counties may contract with the State for such fire-fighting service. In Kern County, however, no state units are maintained. Instead, the county fire department provides protection on lands involving state and federal responsibility under contract with the State Division of Forestry, thereby increasing the scope of the county's fire protection operations. There are eight other fire-fighting units in the county, operated by the seven cities and the U. S. Forest Service. Mutual aid agreements exist between these agencies and the county.

The Kern County Fire Department employs 206 paid firemen to man a total of 127 pieces of equipment at 34 regular full-time fire stations; the location of the fire stations is shown below.

Stations located inside incorporated cities:

Bakersfield (headquarters)
Delano
Maricopa
Shafter
Tehachapi
Wasco

Stations located outside incorporated cities:

Arvin
Buttonwillow
Edison
Fellows
Glennville
Greenacres
Greenfield
Highland Park
Inyokern
Keene
Kernville
La Cresta
Lamont
Lebec
Loraine
Lost Hills
McFarland
McKittrick
Mettler
Mojave
Minter Field
Niles Street
Old River
Randsburg
Ridgecrest
South Gate
Taft
Woody

Sixteen of the stations have two pieces of equipment and four men. The Taft station has 10 pieces of equipment and 20 men, and the Bakersfield station has 11 pieces of equipment and 24 men. The others have two men each. Four volunteer stations are operated, at Boron, Frazier Mountain Park, Rosamond and Valley Acres. The county also operates three fire lookout stations. Every city except Taft has a full-time county fire station inside its boundaries; the Taft station is located a few yards beyond the city limits.

Fifteen of the full-time stations and two of the volunteer stations are in unincorporated urban areas. Five of the full-time stations are in and around Bakersfield. An estimated 400 volunteers are available to assist the regular county men and some of these operate the four volunteer stations.

A comprehensive review of the number, site and location of Kern County's fire stations may be found in the "Seventh Progress Report: Public Safety," prepared by Louis J. Kroeger and Associates, under date of December 1951. This is one of a series of reports made at the request of the Kern County Supervisors, as part of a survey of the county's administrative organization and practices. In the portion of this report which deals with fire protection operations, the following comments are made (page 42):

> "The problem of where stations should be placed and how they should be equipped and manned has existed since 1931. * * * As new equipment has been purchased and more manpower obtained, stations have been established, one or two at a time, until now the county is blanketed with them. In 1947 the Board of Fire Underwriters of the Pacific made a survey of the fire defense system in the county in which they recommended the placement of stations, equipment, and manpower. Since that time, departmental policy has been guided, to some extent, by that report. We find, however, that some stations have since been established where the Underwriters said they were not needed. * * *
>
> "The present location of the stations, in short, is the result of many separate decisions made at different times and under different pressures. Nine more stations have been built than the Board of Underwriters recommended in 1947. It would be only by chance that such placement of stations, equipment, and manpower would meet the exact needs of Kern County in 1951.
>
> "At the time of this survey, there were 16 stations manned by four full-time year-round men. According to fire department records, these stations made an average of 41 runs during a 17-month period. But the number of runs made by an individual station ranged from only four during the period, to 131. Three of the stations averaged less than one run every two months. At the same time there were two stations manned by only two men instead of four that averaged over three runs a month.
>
> "Another interesting comparison is by population served. There is a two-man crew and one truck serving a community of 4,900 people, while a four-man crew and two trucks serve a community of 250 people."

The conclusion to be drawn from these observations set forth in the Kroeger report is that there are some instances of an uneven distribution of firefighting forces in Kern County. Such a situation is probably not unique to this county because the administrative problems involved with planning ahead to meet the fire protection needs created by a rapidly changing population and residential development also occur in many other counties and do not lend themselves to simple solution.

The county fire department is equipped to fight all types of fires, including forest, brush, grass, crop and structural, with the single limitation that it has no equipment for structures of more than two stories in height. It is especially well-prepared to deal with industrial fires, cotton crop fires and petroleum fires of all types. No hydrants are owned or rented. The county fire chief reports that at the present time 48 percent of the department's efforts are expended on fighting fires in watershed areas and the remaining 52 percent on structural and other type fires.

Pursuant to Section 25643 of the Government Code, boards of supervisors may exempt property located inside cities from that portion of the county tax rate which covers the costs of structural fire fighting.[10] In Kern County these costs are currently computed at $638,620, requiring a tax rate of $0.14 per $100 of assessed valuation. The only city now exempted from this tax is Bakersfield. According to the fire chief, the other cities were given an opportunity to be exempted from the costs of structural fire protection, but declined. Evidently these cities did not wish to assume all the responsibility for fighting structural fires, preferring that the county continue to respond to city alarms on the existing basis. Exemption granted by the county pursuant to Section 25643 is not perpetual, but is subject to renewal each year by the supervisors. State law does not permit any property on the tax rolls to be exempted from watershed protection costs, such protection being deemed to be a county-wide responsibility.

For calendar 1951 the fire chief reported the following count of responses to fires inside cities, fire districts and other areas in the county:

	Responses by type of fire—1951				
Area	*Forest*	*Grass, crops*	*Structural*	*Miscellaneous*	*Total*
Incorporated cities:					
Bakersfield	--	1	48	20	69
Delano	--	--	2	--	2
Maricopa	--	--	1	3	4
Shafter	--	6	14	9	29
Taft	--	--	7	2	9
Tahachapi	--	--	1	2	3
Wasco	--	2	22	7	31
Total incorporated cities	--	9	95	43	147
Fire protection districts:					
Arvin	--	3	8	7	18
Ford City	--	--	8	5	13
Inyokern	--	--	2	4	6
La Cresta	--	--	7	4	11
Mojave	--	--	11	6	17
Ridgecrest	--	--	11	15	26
Rosamond	--	--	1	--	1
South Taft	--	--	10	3	13
Virginia Colony	--	--	4	2	6
Oildale	--	--	9	8	17
Total fire protection districts	--	3	71	54	128
Other county areas	50	407	441	581	1,479
Totals	50	419	607	678	1,754

The miscellaneous category includes vehicle, rubbish, baled-cotton, nonstructural, petroleum and other types of fires not classifiable under other headings.

The 147 responses inside cities amounted to a little more than 8 percent of the total responses. Of these, 129 occurred in the three cities of Bakersfield, Shafter and Wasco. However, the 69 responses inside Bakersfield were occasioned by the necessity for county protection in the Sunset Fire Protection District area which, although officially annexed by the City of Bakersfield in December of 1950, was not furnished with city fire protection until January of 1952. All county runs inside cities are made under existing mutual aid agreements. The county responds to city fires on a "first alarm" basis, except in Bakersfield, where it only responds if requested. As already discussed under the preceding section on city services rendered outside city limits, the cities reported a total of 25 outside runs under the mutual aid plan. All cities except Maricopa and Shafter made such outside responses. County runs inside cities roughly offset the outside runs by cities, except in the cases of Bakersfield, Shafter and Wasco. The City of Bakersfield reports that its fire department made 14 outside runs during 1951, but that the county fire department, except for the responses in the Sunset Fire Protection District area mentioned above, has not responded to a fire call inside the city since 1944. Shafter, on the other hand, made no outside runs in 1951, and Wasco made only one while the county responded to 60 fires in those two cities during the same period. Of the 60 fires in the two cities, 36 were structural. Thus it appears that Shafter and Wasco are obtaining a substantial net amount of structural fire protection from the county, while other cities receive amounts which approximately balance their support of outside fire protection. Bakersfield, of course, is not a case in point since its residents do not contribute toward structural protection costs.

As to the 1,607 county responses outside cities, about 68 percent were for fires other than structural. Over nine-tenths of these responses were outside fire district areas as well, reflecting the heavy incidence of fires in sparsely settled areas with oil and crop fire hazards. The county fire chief tabulated a total of 419 responses to alarms in "metropolitan areas" surrounding the cities. Most of these occurred in the Bakersfield and Taft fringe areas.

An appraisal of the "level" of fire protection service provided by Kern County in rural areas may be obtained from the reports of the Board of Fire Underwriters of the Pacific, which makes careful analysis of the important elements influencing the efficacy of fire protection systems, for use as a base in determining insurance ratings.[11] According to the board,

> "The Kern County Fire Department grades Class 1 under the Rural Schedule, which is equivalent to Class 8 under the National Board Schedule. In areas where water systems are provided, better classifications are given. This is the one county that definitely does maintain superior fire protection on a county-wide basis." [12]

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[10] This section was added by Chapter 1481 of the Statutes of 1949, and is reproduced as Exhibit 1, Appendix C.

[11] These ratings are referred to by the board of supervisors whenever they are presented with a request for additional equipment or personnel.

[12] Letter from the Board of Fire Underwriters of the Pacific, August 28, 1952.

A rating of Class 1 under the rural schedule indicates the best type of rural fire protection, and is considered equal to Class 8 under the schedule used for cities and towns. Since the city ratings only run from 1 to 10, and since the insurance companies commonly require a rating of eight before they consider a community to be protected, it would appear that the rural areas in Kern County are receiving an urban level of fire protection.

The cost of county fire protection, other than watershed operations, is estimated as amounting to $638,620. Relating this amount to the population outside cities yields a per capita expenditure of $3.74. This is higher than the figure for four of the cities in Kern County.

Of the total expenditures for county fire protection in 1951-52 ($638,620), it is estimated that $18,640 was contributed by residents of cities. The total expenditure was met from balances of $19,240 and from the county tax rate of $0.14 per $100 of assessed valuation for fire, levied upon all property outside the City of Bakersfield. The other six cities contain 3 percent of the county tax base outside Bakersfield, and on this basis it may be estimated that their residents contributed 3 percent of the total revenues raised by this property tax rate ($619,380). Thus the amount estimated as paid by city residents comes to $18,640.

Health and Sanitation—Budgeted expenditures for health and sanitation amounted to $1,091,903 or 4.5 percent of the total county budget. The distribution of this amount by fund is shown below.

Fund	*Budgeted expenditures*	*Percentages*
County	$368,678	33.8
Salary	723,225	66.2
Total	$1,091,903	100.0

The services of both the county health department and the Stony Brook Retreat and Preventorium are available to all residents of the county. Stony Brook Retreat and Preventorium is a tuberculosis sanatorium located at Keene. Its operation involves expenditures budgeted at $502,435. Indigent patients are treated without charge, while others are charged according to their ability to pay. A patient census taken in December of 1951 and reported by the county to be typical of the institution's work load, showed that of the patients in the sanatorium at that time, 34 percent came from incorporated cities, 47 percent from urban unincorporated areas and 19 percent from rural areas, a distribution which is roughly similar to the population distribution in Kern County.

All public health services in Kern County are performed by the county health department, at a cost budgeted at $589,558 for fiscal 1952. State and federal assistance in 1951-52 was expected to amount to almost $100,000. The cities have no health departments of their own, relying on the county health officer to provide public health services, pursuant to Sections 476 and 477 of the State Health and Safety Code. The county also enforces city health ordinances in the respective city jurisdictions, as provided for by Sections 480, 481 and 482 of the Health and Safety Code. While state law provides that charges may be made for the enforcement of city ordinances, this is not done except in the case of Bakersfield, which pays $2,400 per year on a contractual basis. Data gathered by the county health department for the year 1951, as shown in its annual report for that year, summarizes the picture with respect to the enforcement of state laws and city health ordinances inside cities. The number of health inspections undertaken is shown below.

	Inspections		
City	*State laws*	*City ordinances*	*Total*
Bakersfield	4,238	6,307	10,545
Delano	1,077	517	1,594
Maricopa	373	81	454
Shafter	628	266	894
Taft	1,171	537	1,708
Tehachapi	130	27	157
Wasco	874	270	1,144
Total	8,491	8,005	16,496

Thus, the county performed 16,496 inspections under all laws and ordinances, of which 8,491 (51.5 percent) were made under state law. For all cities except Bakersfield, the number of inspections under state laws was considerably larger than the number under city ordinances.

The inspection charges of $2,400 per year paid by the City of Bakersfield fall into the category of intergovernmental services. In the opinion of the county health officer, however, the City of Bakersfield would have to pay considerably more than $2,400 if it performed the same number of inspections with its own health department. This opinion is based on calculating the total inspection costs at a figure of $1.72 per inspection, the amount billed to cities by the Los Angeles County Health Department. If this in fact approximates the actual inspection cost in Kern County, the total cost to the county for enforcement of Bakersfield's local ordinances in 1951 would have amounted to $10,848, instead of the $2,400 which the city paid to the county. The difference of approximately $8,400 would thus reflect the savings accruing to the city as a result of the contractual figure. The fact that the county did not charge the other six cities for the 1,698 inspections performed under their local health ordinances, and does not plan to make charges for present or future inspections, must be considered as an important economy in the operation of these cities.

In addition to enforcing state statutes and city ordinances pertaining to health matters, the county also provides clinic services in health centers located throughout the county; conducts a school health program; conducts a crippled childrens' program; maintains the records on vital statistics; inspects milk and dairies; issues permits for sewage disposal facilities; issues birth and death certificates; and operates a pound. Eleven health centers are also operated by the county health department. One full-time center is located in Bakersfield, while the cities of Delano, Shafter, Taft and Wasco are served with part-time centers.

Six other part-time centers are located in Arvin, Buttonwillow, Lamont, McFarland, Mojave and Ridgecrest.

The school health program represents something of a departure from the situation typically encountered in California counties, in that the Kern County Department of Public Health does not furnish a school nursing program under a contract with the school districts, but administers a community public health program in which the entire *family* is the basic unit. Under this arrangement the schools make no payments to the county. According to the county health officer the plan has been accepted by most of the schools in Kern County, in lieu of the employment of school nurses. This type of program is recognized as making the most efficient use of personnel and has the approval of taxpayers' association groups. Only the City of Taft school districts and the Union High School District in Bakersfield do not receive school nursing as a part of the community health program, preferring to employ their own nurses.

Milk and dairy inspections are performed only by the county health department and are essentially county-wide in that they protect all consumers of dairy products wherever they may live in the county. Permits and certificates of various kinds are issued by the county health department and specific fees are charged for such permits.

The county pound is jointly operated with the City of Bakersfield, which provides the pound facilities and an attendant, while the county pays for equipment and supplies and also provides supervision. The pound serves the entire county, including all cities except Taft, which operates its own pound. Although county pound expenses are separately calculated, the total expenditure probably does not exceed $5,000, of which Bakersfield pays about $3,000.

Except for possible questions involving (1) county pound services not performed in Taft, and the Bakersfield funds involved in joint pound operations, and (2) county school nursing services not performed for certain Taft and Bakersfield school districts, it is clear that all of the operations of the Kern County Department of Public Health may be classified as county-wide in nature.

Discussions concerning the amounts of service rendered by the county health department to the City of Bakersfield led to a spot survey of the department records. Based on the case load figures obtained in the spot survey, the county health officer calculated that Bakersfield, with about 15 percent of the county's population, received at least 20 percent of the total services of the department, and that the value of these services was about $118,000. This supports the conclusion that, like other county-wide services, the operations of the county health department are provided in approximately the same proportion as the distribution of county population in the areas served.

Highways and Bridges. Expenditures for highway purposes in the 1951-52 budget amounted to $2,418,680, or 10.1 percent of the county's total budget. Of this amount, $2,117,640 was for highways and bridges; $143,660 for permanent roads; and $157,380 for the administrative organization of the road commissioner.[13] A distribution of these expenditures, by fund, is presented below.

Fund	*Budgeted expenditures*	*Percentages*
Special road improvement	$2,275,020	94.1
Permanent roads	143,660	5.9
Total	$2,418,680	100.0

To meet the budget requirements shown above, the following revenues were listed in the county budget.

Permanent Roads Fund:		
Available balance, July 1, 1951	$23,518	
Revenues from prior years' levies	116	
Current revenue from tax rate of $0.0249 included in the basic county-wide tax rate	120,026	
		$143,660
Special Road Improvement Fund:		
Revenues from prior years' levies	457	
Available balance, July 1, 1951	189,782	
Current revenue from tax rate of $0.15 levied in the unincorporated areas only	658,281	
Traffic fines	225,000	
Federal subventions	1,500	
State highway users tax subventions	1,200,000	
		2,275,020
Total revenues for highway purposes		$2,418,680

It should be noted that taxpayers in cities contributed directly to the permanent roads fund, through a tax rate of $0.0249 included in the basic county-wide tax rate. As was shown in Table 16 above, this amounts to approximately $15,000, or 10.4 cents of every permanent road fund dollar. City residents also contributed to county roads through the state subventions to Kern County from state taxes on gasoline and highway users. According to the analysis in Table 15 above, residents of cities paid an estimated $302,400 of the $1,200,000 received from the State and placed in the special road improvement fund. It should also be recalled here that the in-lieu subvention, paid from state taxation of motor vehicles, is placed in the county fund and therefore does not finance any highway work. Altogether it may be estimated that residents of incorporated cities in Kern County directly and indirectly pay $317,400 of the total budgeted expenditures of $2,418,680, or about 13 percent of the county's over-all budget for highway purposes.

Taxpayers in the unincorporated areas are subject to a road tax rate of $0.15 per $100 of assessed valuation. This tax rate is fixed according to the expected needs for road purposes in the unincorporated areas, involving projects which may not basically be classified as possessing a general county interest. For the year 1950-51 this road tax rate was set at only $0.06. The present rate of $0.15 is expected to produce over $658,000, which is more than enough to finance "local-type" work in the unincorporated territories.

There are 3,010 miles of roads in the county system, of which 1,051 miles (35 percent) are classified as primary and 1,959 miles (65 percent) are classified as secondary. According to the road commissioner, 84 miles of the primary system and 351 miles of the secondary system lie in unincorporated urban areas. This amounts to about 17 percent of the county road system and absorbs approximately 12 percent of the county's expenditures on highways.

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[13] Expenditures for this function are shown in detail in Appendix C, Table 1.

Any construction or maintenance work on the primary road system is a matter of general county concern, as is similar work on the rural secondary system of "farm to market" roads. These routes involve the largest amount of expenditures for highway purposes. By comparison, urban secondary road construction and maintenance involved $24,378 and $183,189 respectively, during fiscal 1951, taking up 10.5 percent of total highway expenditures for that year. Expenditures on urban secondary roads are not precisely known for the 1951-52 year, but they will, in all probability, amount to approximately the same proportion of the highway budget, or about $254,000. Deducting this amount of $254,000 from total budgeted expenditures for highway purposes leaves a balance of $2,164,680 supporting the county-wide primary and rural secondary road system.

The only road work performed inside cities by the county involves minor construction and maintenance on four miles of streets which lie partly in cities and partly in the county. No road work is performed for the cities on a contract basis, nor does Kern County lend or rent any road equipment to the cities.

With respect to the 251 miles of urban secondary streets, it should be noted that a significant proportion was originally rural secondary road but became urban secondary in recent years as population density increased in certain areas of the county. The rest of the urban secondary mileage consists of subdivision roads built by the subdivider and subsequently accepted into the county road system. Some subdivision roads have not been accepted due to below-standard construction. The county builds no subdivision roads, nor does it build or pay for curbs, gutters or sidewalks. No road or street work is done by special assessment.

Other county highway and street services include street sweeping and street lighting. The county operates two power streetsweepers, one in the Bakersfield fringe and the other in the Taft fringe, sweeping those portions of the fringe areas which have curbs and gutters. In this case, the Supervisors of Kern County have decided that to leave unswept those portions of urban streets which have curbs and gutters would create hazards to the public health and convenience, and on occasion, interfere with efficient street drainage. The expenditures involved are entirely covered by funds raised through the road tax levied in unincorporated areas.

The county and the state share the costs of installation and maintenance on a limited number of street lights and traffic signals located at intersections of the two road systems. The county's contributions to these expenditures are paid out of the special road improvement fund. No street lighting is provided by the county in unincorporated urban areas. The 15 special districts organized for lighting purposes provide this service to most of the urban areas in the county.

In conclusion it may be stated that no substantial inequities appear to exist with respect to county expenditures for highway purposes. Except for expenditures on urban secondary streets, estimated at $254,000, all outlays are for primary and rural secondary purposes and thus are vested with a general county interest. County expenditures for urban secondary streets, as well as for minor streetsweeping operations, are met from the road tax of $0.15 per $100 of assessed valuation levied only outside cities.

Recreation and Parks. The budget for parks and recreation amounted to $629,087 in 1951-52, or 2.6 percent of the total county budget. Against this expenditure, it was anticipated that golf fees would produce $12,000. Thus the net outlay for this service amounted to $617,087. These expenditures, distributed by fund, are shown below.

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentages*
County	$288,127	$276,127	44.7
Salary	340,960	340,960	55.3
Total	$629,087	$617,087	100.0

The amount spent by Kern County for park and recreation purposes is higher as a percentage of its total budget than in the case of any other California county. Kern County ranks eleventh in population and sixth in total expenditures, but it ranks second among all counties in expenditures for park and recreation purposes. The underlying reason for the size of these outlays appears to be an extensive park system and a cooperative recreational and cultural program, the nature of which is explained below.

The seven items included in this county function may be classified into four main groups as follows: Kern County Museum, $34,385; Parks and Recreational Areas, $427,817; Veterans and Memorial Buildings, $16,845; Kern County Recreational and Cultural Commission, $150,040. Expenditures for the Kern County Museum and the Veterans and Memorial Buildings may reasonably be considered as county-wide in nature. There are 17 buildings for veterans' purposes, located in the most populous areas of the county, whether incorporated or unincorporated.

There are 54 parks in the park system of Kern County, embracing a total area of about 1,500 acres. These vary considerably both in size and in degree of development. According to the park superintendent, 38 are neighborhood parks, 11 are regional and five are in valley, mountain or desert areas. However, the survey of the recreational facilities in Kern County made by Louis J. Kroeger and Associates states that only six of the county parks can be considered as regional in type. By this is meant that only six parks are sufficiently developed and so located as to attract a large part of the residents of the county.[14] The Kroeger report goes on to say that "the balance are small, have a limited development and are centered in local community areas which are their sole beneficiary." One county park now lies in the City of Bakersfield, due to an annexation. However, it is still operated by the county. From the budget for fiscal 1952, it appears that about half the total expenditures on parks and recreational areas supports the six county-wide facilities, while local-type parks require the remainder. All the cities except Maricopa and Wasco list various outlays for park purposes, indicating that the county park facilities in their locality do not meet the whole of their requirements. However, a large proportion of city expenditures for parks, particularly in smaller cities, supports small parks of a monumental, landscape or memorial character, not designed for recreational purposes.

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[14] *Eighth Progress Report: Recreational Services,* Louis J. Kroeger and Associates, December, 1951, p. 7.

A separate comment should be made concerning the Kern County Public Golf Course. This is not actually under the park department, but is supervised by a manager responsible directly to the supervisors. Expenditures budgeted for fiscal 1952 were nearly $30,000, while estimated green fees amounted to $12,000. The excess of expenditures over related revenues for the past five years has averaged between $10,000 and $12,000. This recreational facility attracts users from a wide area, including many city residents.

While it is recognized that county local parks near incorporated cities undoubtedly receive some use by city residents, the whole group of local parks is considered here as a county service primarily provided for noncity residents. One-half of the parks and recreation budget, amounting to $214,000, may reasonably be charged to these local-type parks.

The direct contributions made by city residents towards this county expenditure on local-type parks is therefore estimated to amount to $16,430.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
County	$95,660	$3,060
Salary	118,340	13,370
Total	$214,000	$16,430

[a] Calculated according to fund analysis shown in Table 16.

Kern County's Recreational and Cultural Commission is administratively separate from the park department and reflects the recent trend toward the provision of functional recreation services by counties. This trend has only gained momentum since the end of World War II, although San Francisco County and Westchester County (New York) had this type of program as early as 1930. By 1940, six more counties in the United States were providing this type of recreation service, and two of these were the California counties of Los Angeles and San Mateo. At the present time, 48 counties in the United States directly provide functional recreational services, and seven of these counties are in California. Only 12 states at present have enabling statutes permitting counties to assume such recreational functions. California adopted enabling legislation in 1939, as part of the Education Code. Portions of the relevant sections merit citing, as background to an understanding of the operations of the recreational and cultural commission:

> Ch. 4. Community Recreation. Sec. 24401. "The purposes of this chapter are: (a) to promote and preserve the health and general welfare of the people of the State and to cultivate the development of good citizenship by provision for adequate programs of community recreation. (b) To authorize cities, counties, cities and counties, and public school districts to organize, promote and conduct such programs of community recreation as will contribute to the attainment of general educational and recreational objectives for children and adults of the State (enacted 1943)."
>
> Sec. 24402. "The following terms, wherever used or referred to in this chapter have the following meanings, respectively, unless a different meaning clearly appears in the context: * * *. (c) 'Recreation' means any activity, voluntarily engaged in, which contributes to the physical, mental, or moral development of the individual or group participating therein, and includes any activity in the fields of music, drama, art, handicraft, science, literature, nature study, nature contacting, aquatic sports, and athletics, or any of them, and any informal play incorporating any such activity."

The general aims of Kern County's Recreation Commission have been stated by its executive director as follows: (1) To develop a county-wide system through a cooperative program with cities and communities in the county; (2) to enable and assist communities, large and small, incorporated and unincorporated, to meet their recreational needs through their own initial efforts toward a well-organized and planned community recreation program *locally managed*; (3) to provide ways and means for recreation and cultural opportunities to all age groups, but particularly to the children and youth in *all* communities; (4) to study and develop methods for providing adequate recreation areas and facilities commensurate with the needs of the individual communities; (5) to study and devise methods of financing both facilities and programs which are derived from the broadest county tax base.

In furtherance of these aims, Kern County engages in two types of programs: (1) the *special services program*, which consists of county sponsored, county-wide projects such as games, tournaments, camping areas, exhibits, festivals, concerts and leadership training; and (2) the *community services program*, in which the county, the cities, school districts and the two recreation districts pool their resources to provide local recreation programs.

The special services part of the county's recreation activities absorbs roughly 45 percent of the $150,040 budgeted to the recreational and cultural commission, and appears to benefit all residents of the county. Many of the games and contests are arranged between local groups by the county, while the festivals, concerts, camps and similar projects attract persons from all parts of the county.

With respect to the community services program, the county is a party to 28 contractual agreements affecting 45 communities throughout the county, pursuant to which recreation activities are largely planned and directed at the local level and cooperatively financed by all the agreeing parties. For the most part, these programs are conducted on school playgrounds, but in a few cases county park playgrounds are used. Fifty-five percent of Kern County's recreation budget is spent in support of such local programs, on a fund matching basis.

Under present arrangements, the county assumes 50 percent of the local recreation budget and the community assumes the other 50 percent, one-half through school district participation and the other half through direct community payment. All the cities are in the program, and pay the direct community share via their general funds. In the case of Bakersfield, the school districts have not made any contribution during the past three years, and the city has paid the entire 50 percent. The unincorporated communities make up their locally raised 50 percent through the school districts and private fund raising efforts in the form of barbecues, dances, and individual contributions. A tendency on the part of some communities to obtain disproportionate amounts of county matching funds by raising large local funds has been checked by the supervisors' recent decision to limit the county share to $0.50 per capita.

The county and school district shares are used for salaries of recreational leaders who are locally selected. In addition to financial aid, the county provides consultation services, assistance in program organization, and training for recreational leaders. The local funds are also used for recreational supplies and equipment. Budgets are developed at the local levels, although the county and school district moneys are actually disbursed by the county. For the cities, the administrative body is a local recreation council established by city ordinance. In the unincorporated communities, three-man or five-man local recreation councils have been appointed by the county supervisors. It is required that at least one council member be a trustee of the local school board and one a representative of the Parent-Teachers Association. The two special recreation districts participate in this community service program on the same basis as any other community or area.

According to the executive director, Kern County appropriated a total of $31,225 in matching funds to the cities during 1950-51, out of total recreational and cultural commission expenditures of $117,341. Of this amount, $20,000 was paid to the City of Bakersfield; $8,125 was paid to the six other cities; and $3,100 was paid to the two special recreation districts. Participating school districts contributed a total of $15,835.

This analysis indicates that the parks and recreational activities of Kern County are county-wide. The only exception arises with local parks. The estimated outlays of $214,000 on local parks seem to benefit, for the most part, the residents of the unincorporated communities in which such parks are located.

Education. The only service of interest to this study within the general budget category of education is that of the county library.

The Kern County free library system is one of the largest in California. In fiscal 1950 it had a circulation of 1,334,225 and ranked second highest in circulation in the State. The county librarian reported that there were 10 full-time branches, seven of which were located inside incorporated cities. In addition there were 68 part-time branches, of which 11 were located inside cities. A bookmobile service was also operated to serve the Bakersfield fringe areas and rural schools. There are no city libraries in Kern County. The library is supported by a county-wide property tax levy.

Charities, Hospitals and Corrections. This general category of expenditure was the largest single item in the county budget for 1951-52. Expenditures amounted to $11,637,405, or 48.5 percent of the total county budget. The distribution of this expenditure is shown below, by fund.

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentages*
County	$8,517,495	$8,398,495	72.9
Salary	3,119,910	3,119,910	27.1
Total	$11,637,405	$11,518,405	100.0

Over 65 percent of the expenditures of this general category were for the county categorical aid programs. In support of these programs the county received state subventions of $3,279,647 and federal subventions of $3,309,067, or 54 percent of the total amount budgeted.

The county hospital is of special concern to this study. The county operated three hospital institutions, viz., the Kern General Hospital in Bakersfield; a branch of the general hospital in Taft; and the Stony Brook Retreat and Preventorium in Keene. The latter is operated by the county health department and has already been discussed. The Kern General Hospital has a capacity of 798 beds, of which 28 are at the Taft branch. Only indigent patients are accepted for hospital treatment, with the exception of contagious disease and highway accident patients; the latter are admitted on a paying basis.

Although the population of Kern County in 1950 was only 228,309, annual admissions to the General Hospital occurred at a rate about double that experienced by three other counties of similar population size, and closely approached the admission rates of Alameda and San Diego Counties. Admissions in 1949-50 amounted to 11,479 and in 1950-51 they amounted to 11,000. In addition, 2,400 births, 33,000 emergency room treatments, and 97,500 out-patient clinic visits were recorded during 1950-51. This unusually heavy hospital work load is in part attributable to the large migrant agricultural labor population.

Expenditures covering these operations were budgeted at $2,938,245 for fiscal 1952, not including $25,500 for a few construction projects listed under public works. This gross expenditure was reduced by direct charges to part-pay patients ($42,000); charges for special services such as meals and rent to employees ($55,000); interdepartmental payments ($29,000);

and a grant-in-aid from the State to assist in hospitalization of the needy aged ($30,000). Deducting total offsets of $156,000 leaves a net cost of $2,782,245 for direct operations of the general hospital. This represents 11.9 percent of the net county budget. All expenditures for the hospital, as well as for the other charities and corrections items, were made from the county and salary funds.

The distribution of the county's hospital services is indicated by the figures obtained from a patient census survey made for the committee by the hospital administrator. In February, 1952, 50.3 percent of the hospital patients were residents of incorporated cities, 29.2 percent were from unincorporated urban areas, and 20.5 percent were from rural areas. The 1950 distribution of population, on the other hand, was 25.2 percent inside cities, 42.8 percent in unincorporated urban areas, and 32.0 percent in rural areas.

The situation in Kern County thus provides another illustration of the typically heavy hospital indigent load from the cities, in comparison with their proportion of the county population. The basic reason for this, of course, is that the indigents tend to gravitate to cities, where agencies to assist them are located, and the city patient figure is thereby exaggerated. This is a major reason why data relating to the distribution of charities and corrections services is highly suspect as a measure of ''benefits'' received by cities versus unincorporated areas.

The Kern General Hospital is the only publicly owned hospital facility in the county, other than the 70-bed institution operated by the West Side Hospital District in Taft. However, no duplication of function results from the existence of a district, because the county hospital is primarily for the medical care of indigents while the district hospital is operated for private patients on a paying basis. Four private hospitals exist in the Bakersfield area and Delano, Mojave, and Ridgecrest each have one hospital.

The county maintains no ambulance service, relying on private operators to supply transportation as required. The county pays for such ambulance service whenever an indigent patient is involved, no matter where he may be picked up for conveyance to the hospital.

Miscellaneous Budget Items

Four categories of county expenditures are examined under this general heading, although eight items appear in the budget. The four items included here are the airports, the Lerdo buildings and grounds, the public works department and the experimental farm. The four items not considered in this section were all included under the general government category of county expenditures. These items were the buildings and safety department, the duplicating department, the chamber of commerce and the fairgrounds and buildings.

The expenditures for the four services listed above in 1951-52 are shown below, by fund.

Fund	*Budgeted expenditures*	*Percentages*
County	$544,600	75.4
Salary	145,810	20.2
Experimental farm	32,591	4.4
Total	$723,001	100.0

The experimental farm conducts research on crops, farming methods and pest control. County expenditures for these purposes, in view of the importance of agriculture in Kern County's economy, must certainly be viewed as county-wide in benefit.

The Lerdo buildings and grounds item involves public works maintenance activities in supplying utilities to the 296 housing units located at Lerdo, the former Minter Army Air Base. Water, sewage disposal, electricity and gas are provided by the county on a charge basis, with receipts closely approximating costs. The Federal Housing Authority directly pays the county for these utilities, and the county is required by law to credit the funds to airport operations.

The Kern County Department of Public Works was established in 1948 by resolution of the supervisors. Its major functions include the enforcement of building and safety regulations, the design and construction of county public works other than roads and special engineering services. Current department expenditures are made from the county fund ($448,627) and the salary fund ($60,200). Over $90,000 of the department's budget was allocated to salaries, wages, and maintenance and operation. The remaining $418,000 financed capital outlays involving almost every county department and facility. About three-fourths of this construction was handled through private contracts. Typical large items were the replacement fire station at Kernville, $26,000; boiler room equipment for Kern General Hospital, $12,000; additional office and laboratory space for weights and measures, $35,000; Veterans' Memorial Building at Wasco, $50,000; health building at Lamont, $22,000.

The only expenditures which might be questioned are those which relate to the nonregional parks outside cities, totaling $21,000. This expenditure constituted about 29 percent of the total capital outlay of $71,417 for parks. Only about $870 of this $21,000, however, is directly paid by city taxpayers, if their share is calculated according to their contributions to the county and salary funds.

The department of public works provides some administrative assistance to the 10 fire districts, 15 lighting districts and 11 sanitation districts. The only significant amount of this assistance, however, is that which is given to the sanitation districts, and involves purchasing, processing of claims, accounting and engineering design. As was mentioned in the section above on special districts in Kern County, one estimate of the value of the department's services to sanitation districts sets the figure at about $6,000. The county makes no charges for services rendered to any special district.

The final item in this miscellaneous category is airports. Kern County maintains the most extensive county airport system in the United States. Total expenditures from the county and salary funds were budgeted at $132,588. Revenues associated with airport operations typically provide about 90 percent of the required outlays. The only three facilities not on a self-sustaining basis are those located at Bakersfield, Mojave and Taft. The bulk of the revenue stems from the land and storage facilities at Lerdo (formerly Minter Field Air Base) which are leased to the Federal Government.

Reserves

The last category in the Kern County budget for fiscal 1952 lists three reserve items. These are shown below.

Fund	*Budgeted expenditures*	*Percentages*
Accumulative capital outlay	$500,000	46.5
Unappropriated reserve	175,000	16.3
General reserve	400,000	37.2
Total	$1,075,000	100.0

The accumulative capital outlay funds were budgeted for land purchase and construction expenses involved in the contemplated county courthouse annex. The general reserve was a "safety fund" for financing county operations beyond the budgeted fiscal year. The unappropriated reserve is set aside to meet contingencies arising during 1951-52, and cannot be analyzed in detail since the nature of any expenditures therefrom was not known.

Summary

Table 17 summarizes the analyses of the various county services presented in the foregoing sections of this chapter. Of a total expenditure of $23,366,682, it was found that $21,850,464, or 93.5 percent, constituted an amount spent for services which were provided to the entire county, or were administered in such a way as to create no inequities. The remainder, $1,516,218, or 6.5 percent of the total, does, however, raise questions of benefits received from this support of county services. Recreation, protection and highways are the major services in question, but minor amounts of expenditures for general government services and the public works department also seem to involve inequities.

Table 18 shows these amounts of county expenditure which affect less than the entire county, and the amounts of revenue which support these expenditures and which may be traced to the residents of particular areas in the county. The total amount of expenditures for which supporting revenues may be traced to city residents amounted to $1,082,600. Of these revenues, $54,620 may be traced as collected from all city residents, and $18,640 from all city residents except those of the City of Bakersfield.

Table 19 translates these revenues collected from city residents in support of less than county-wide services into property tax rate equivalents. If the share paid by all city residents had been shifted to noncity residents ($54,620), the county tax rate for city residents would have been reduced $0.082 per $100 of assessed valuation. In addition to this, taxpayers in all cities except Bakersfield would have received an additional tax rate reduction of $0.125 per $100 of assessed valuation as a result of the elimination of the county tax rate for fire protection. Thus these cities would have received a total rate reduction of $0.207 per $100 of assessed valuation. Meanwhile, if this amount of the estimated city share were shifted to the unincorporated area, the county property tax rate in this area would have been increased by $0.016 per $100 of assessed valuation.

TABLE 17

KERN COUNTY

DISTRIBUTION OF NET EXPENDITURES FOR COUNTY SERVICES, BY BUDGET CATEGORY

1951-52

Budget category	*Net expenditures*[a]	*Expenditures affecting the entire county*[b]	*Percent of total net expenditures*	*Expenditures affecting less than the entire county*[c]	*Percent of total net expenditures*
General government	$2,616,027	$2,563,119	98.0	$52,908	2.0
Protection to persons and property	2,820,451	1,846,141	65.0	974,310	34.5
Health and Sanitation	1,091,903	1,091,903[d]	100.0[d]	---	---
Highways and bridges	2,418,680	2,164,680	89.5	254,000	10.5
Recreation	617,087	403,087	65.3	214,000	34.7
Education	486,128	486,128	100.0	---	---
Charities and corrections	11,518,405	11,518,405	100.0	---	---
Miscellaneous and Reserves	1,798,001	1,777,001	98.8	21,000	1.2
Total	$23,366,682	$21,850,464	93.5	$1,516,218	6.5

NOTES:

[a] Gross budgeted expenditures less associated fees and charges totaling $602,548 for all categories.

[b] Expenditures in this column either support county services which are clearly county-wide, such as indigent aid and hospital service, or involve considerations of revenue sources and county policy which, in the view of this report, create no inequities for any county taxpayer groups.

[c] Expenditures in this column are financed to some extent out of county property tax levies and other county-wide revenues, but support services not provided throughout the county.

[d] Computations were not made for the very minor amounts involved in county pound service not provided inside the City of Taft, nor for school nurse services not provided within certain school districts in Taft and Bakersfield.

SOURCE: Analyses of county departmental operations and expenditures. Budget figures from Kern County Budget for the fiscal year ending June 30, 1952.

TABLE 18

KERN COUNTY

COUNTY SERVICES PROVIDED TO LESS THAN THE ENTIRE COUNTY AND FINANCED BY TRACEABLE REVENUES

1951-52

			Estimated amount of traceable revenues			
Budget categories and departments	*Net expenditures affecting less than the entire county*	*Estimated total traceable revenues*	*Financing county services outside all cities*	*Collected from residents of all cities*	*Financing county services outside the City of Bakersfield*	*Collected from residents of all cities, excluding Bakersfield*
General government:						
Planning commission	$37,438	$29,580	$29,580	$3,720	---	---
Building and safety department	15,470[a]	12,120	12,120	1,530	---	---
Total	$52,908	$41,700	$41,700	$5,250	---	---
Protection to persons and property:						
Sheriff department	$322,200	$229,320	$229,320	$30,700	---	---
Constables	13,490	10,940	10,940	1,370	---	---
Fire department	638,620	619,380	---	---	$619,380[b]	$18,640
Total	$974,310	$859,640	$240,260	$32,070	$619,380[b]	$18,640
Recreation	$214,000	$174,840	$174,840	$16,430	---	---
Miscellaneous and reserves:						
Public works department	$21,000	$6,420	$6,420	$870	---	---
Total	$1,262,218	$1,082,600	$463,220	$54,620	$319,380	$18,640
Percentage of traceable revenue		100.0	42.8		57.2	

NOTES:

[a] This amount represents departmental outlays not covered by inspection fees charged for services.

[b] Since the county provides no structural fire protection inside the City of Bakersfield, that city is exempt from the $0.14 county tax rate levied to cover structural fire protection costs.

SOURCE: Analyses of county departmental operations and expenditures. Budget figures from the "County Budget for the Fiscal Year Ending June 30, 1952," Kern County.

TABLE 19

KERN COUNTY

HYPOTHETICAL COUNTY PROPERTY TAX RATES WHICH RESULT FROM SHIFTING THE CITY SHARE OF THE TRACEABLE COST OF LESS-THAN-COUNTY-WIDE SERVICES FROM CITY TO NONCITY RESIDENTS

1951-52

Tax area	*Assessed valuation 1951-52*	*City share of the traceable cost of less-than-county-wide-services*	*Tax rate required to raise city share*	*Total increase or decrease in county tax rate*	*Basic county tax rate 1951-52*	*Hypothetical county tax rate*
Tax rate reductions:						
All cities	$66,597,850	$54,620	$0.082	$0.082	$2.050	$1.968[a]
All cities except Bakersfield	14,957,550	18,640	0.125	0.207	2.050	1.843[b]
Tax rate increases:						
All unincorporated areas	467,095,745	73,260	0.016	0.016	2.050	2.066

NOTES:

[a] The hypothetical tax rate computed for "all cities" would actually apply only inside Bakersfield; the other six cities have an additional reduction due to the structural fire protection situation.

[b] The hypothetical tax rate of $1.843 would apply to the six cities other than Bakersfield, and takes account of all county services not provided in these cities, including structural fire protection.

SOURCE: Assessed valuations from "Kern County Tax Rates and Assessed Valuations for the Year of 1951-52," compiled by the county auditor; city share of costs from Table 18.

In addition to the foregoing summary, a summary of the situation with respect to the fiscal relationship existing between the cities and the county has been prepared by county officials in response to requests from this committee. This summary, as prepared by the county, is reproduced in Appendix C, Table 2. It is entitled "Report on Departmental Budgets, Revenues, Taxes and Benefits to Cities and Unincorporated Areas for the Fiscal Year July 1, 1951 to June 30, 1952." This report lists each budget item and calculates the current county taxes required. The next calculation shows the amount of current taxes paid by residents of cities and residents of unincorporated areas. Finally, it presents data concerning the benefits accruing to cities and unincorporated areas resulting from the total expenditures budgeted for each item, in two columns entitled "Cities Benefits More Than Paid" and "Cities Benefits Less Than Paid." The report concludes that the cities in Kern County benefit from county services to a net extent of $5,634,144 more than they pay through county taxes. This report has been carefully compiled by the county, and it merits study and scrutiny since it is indicative of the county's own appraisal of the problem of city-county fiscal relations in Kern County. The committee, however, wishes to make clear certain points of difference between the summary submitted by Kern County and the study presented herewith. These points are listed below.

(1) The county summary deals only with current county property taxes as revenues traceable either to city or unincorporated area residents. This study includes other county revenues, particularly state subventions from the Highway Users' Tax Fund, may also be traced to residents of particular areas. Since almost half of the current budget requirements are met from sources other than county taxes, such as state and federal subventions, these sources of county revenue should also be included.

(2) All functions and services are included by the county, whether they are provided throughout the entire county or not. In this study it is felt that certain county functions are above question (such as the administration of justice) because they are provided wherever needed without regard to the contribution of a particular local area or whether these contributions cover the costs of the service to that local area. It is not reasonable to place county-wide services in the balance, permitting them to outweigh the effects of county services which are not county-wide in scope. The two classes of county service (i.e., county-wide and not county-wide) ought to be treated as essentially separate aspects of the problem.

(3) The calculation of benefits to cities or unincorporated areas has been made on the basis of population residing in those areas, except where other criteria, such as case loads, have been used. The idea that benefits are this easily measured is an appealing one, but also a most elusive one. Such measurements are extremely tenuous, tremendously complex, and sometimes practically meaningless when made.

CITY SALES TAXES AND PARKING METER FEES

Five of the seven cities in Kern County levy retail sales taxes, and only one city used parking meters in 1950-51. City revenues from these sources are shown as follows in Table 20.

TABLE 20
KERN COUNTY
CITY REVENUES FROM RETAIL SALES TAXES AND PARKING METER FEES
1950-51

City	*Retail sales taxes*	*Parking meter fees*
Bakersfield	$442,175	[a]
Delano	45,751	$14,617
Shafter	23,373	--
Tehachapi	6,256	--
Wasco	20,182	--
Total	$537,737	$14,617

NOTE: [a] Parking meters were adopted in 1948, rejected in 1949 and re-adopted in 1952.

SOURCE: "Annual Report of Financial Transactions of Municipalities and Counties" for the fiscal year ending June 30, 1951, Office of the State Controller.

In the absence of an actual count, it is impossible to state accurately how much of these revenues were collected by cities from residents of outside areas. A very crude guess can be made on the basis of the estimate made in a recent study of the State Board of Equalization that 20 percent of all taxable sales inside cities were made to the residents of unincorporated areas.[15] On this basis, the shares of these city taxes and fees paid by noncity residents would amount to the sums shown below.

	Total revenues	*Estimated share paid by noncity residents*
Sales taxes	$537,737	$107,547
Parking meters	14,617	2,924
Total	$552,354	$110,471

COUNTY AND SPECIAL DISTRICT TAXES PAID BY CITIES

Two cities in Kern County made payments to the county on property owned and located outside their city boundaries. In 1950-51, the City of Bakersfield paid a total of $2,898 in property taxes to the county on a park, two city dumps, a sewer farm and a police pistol range. The City of Delano paid county taxes in the amount of $280 on sewer farm property owned by the city.

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[15] "What's Next in Local Sales Taxes?", State Board of Equalization, Sacramento, California, January, 1951, p. 17.

CHAPTER VI

ALAMEDA COUNTY

GENERAL CHARACTERISTICS OF ALAMEDA COUNTY

Physical and Economic Characteristics

Alameda County ranks 47th in size among the counties of California, with an area of 733 square miles, and third in population, according to the census of 1950. It is bounded on the west by San Francisco Bay; on the north by Contra Costa County; on the east by San Joaquin County; and on the south by Santa Clara County. Eight of its ten cities and all of the important unincorporated urban areas lie in a level strip between San Francisco Bay and the Berkeley-San Leandro hills. This strip varies from three miles in width at the north to eight miles in width at the southern end. Starting at the north, the cities of Albany, Berkeley, Emeryville, Oakland and Piedmont make up a contiguous series of incorporated communities forming a large metropolitan area exceeding 630,000 in population. A large unincorporated urban area occupies the territory between San Leandro and the City of Hayward, five miles to the southeast. South of Hayward, an urban fringe area and seven unincorporated communities have developed, extending to the southern end of the county. East of the hills which divide the county is the Livermore-Amador Valley, an agricultural area. The two cities of Livermore and Pleasanton and three minor unincorporated communities are located in this valley. Figure 1 presents a map of the county showing the location of these cities and unincorporated urban areas.

On the west side of the county an almost continuous industrial development runs along the bayshore from Richmond in Contra Costa County to Berkeley, Emeryville, Oakland and Alameda. A large industrial development has also occurred in San Leandro and Hayward and in the unincorporated areas south and west of these cities. The county has large and excellent port facilities; a network of highway and rail transportation; and its cities serve a large agricultural area, which has led to major commercial development as well as industrial growth. In fact, a substantial part of the industrial growth has been related to agricultural production, particularly such industries as canning, fertilizers and farm machinery.

Population Distribution

Figure 2 shows the growth in county population from 1900 to 1950, the changes in the population of cities between 1940 and 1950, and the growth of the unincorporated area during this decade. Table 1 presents the absolute and percentage changes in population by cities and unincorporated areas. It is apparent from both the table and the figure that population growth in the unincorporated areas has been much greater than population growth in the cities, and that the cities have lost ground as a proportion of the county's total population.

For the decade ending in 1950, population growth in Alameda County (44.3 percent) did not quite match the rate for the State as a whole (53.3 percent). City population rose 35.6 percent, but there were wide variations in the rate of population growth among the cities. Piedmont showed an increase of 2.7 percent, as compared with Hayward, which led all the cities with a percentage gain of 111.9. San Leandro, Alameda and Pleasanton were next in order with increases of 88.6, 77.7 and 75.6 percent, respectively.

As in so many California counties, however, population growth in the unincorporated areas of Alameda County greatly exceeded the growth inside cities. From a total of 39,665 in 1940, these areas rose to a total of 98,472 in 1950, a percentage gain of 148.3. Most of this unincorporated area growth took place in Eden Township. The rapid development in the unincorporated parts of the county during the 1940-50 decade is shown by Figure 3. Of the eight townships existing in 1950, only four included unincorporated areas. These were Eden, Murray, Pleasanton and Washington. The remaining townships of Alameda, Brooklyn, Oakland and Peralta were entirely incorporated. Eden Township included the area east of Oakland, to a line running roughly north and south just west of Dublin, and the area south to an east-west line above the community of Alvarado, thus including the

TABLE 1

ALAMEDA COUNTY
POPULATION OF INCORPORATED AND UNINCORPORATED AREAS

1940 and 1950

Area	*Population* *1940*	*1950*	*Percent of total population* *1940*	*1950*	*Percentage increase 1940 to 1950*
Incorporated areas	473,346	641,843	92.3	86.7	35.6
Oakland	302,163	384,575	58.9	51.9	27.3
Berkeley	85,547	113,805	16.7	15.4	33.0
Alameda	36,256	64,430	7.1	8.7	77.7
San Leandro	14,601	27,542	2.8	3.7	88.6
Albany	11,493	17,590	2.2	2.4	53.0
Hayward	6,736	14,272	1.3	1.9	111.9
Piedmont	9,866	10,132	1.9	1.4	2.7
Livermore	2,885	4,364	0.6	0.6	51.3
Emeryville	2,521	2,889	0.5	0.4	14.6
Pleasanton	1,278	2,244	0.2	0.3	75.6
Unincorporated areas	39,665	98,472	7.7	13.3	148.3
Total	513,011	740,315	100.0	100.0	44.3

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

FIGURE 1

ALAMEDA COUNTY

INCORPORATED AND UNINCORPORATED AREAS

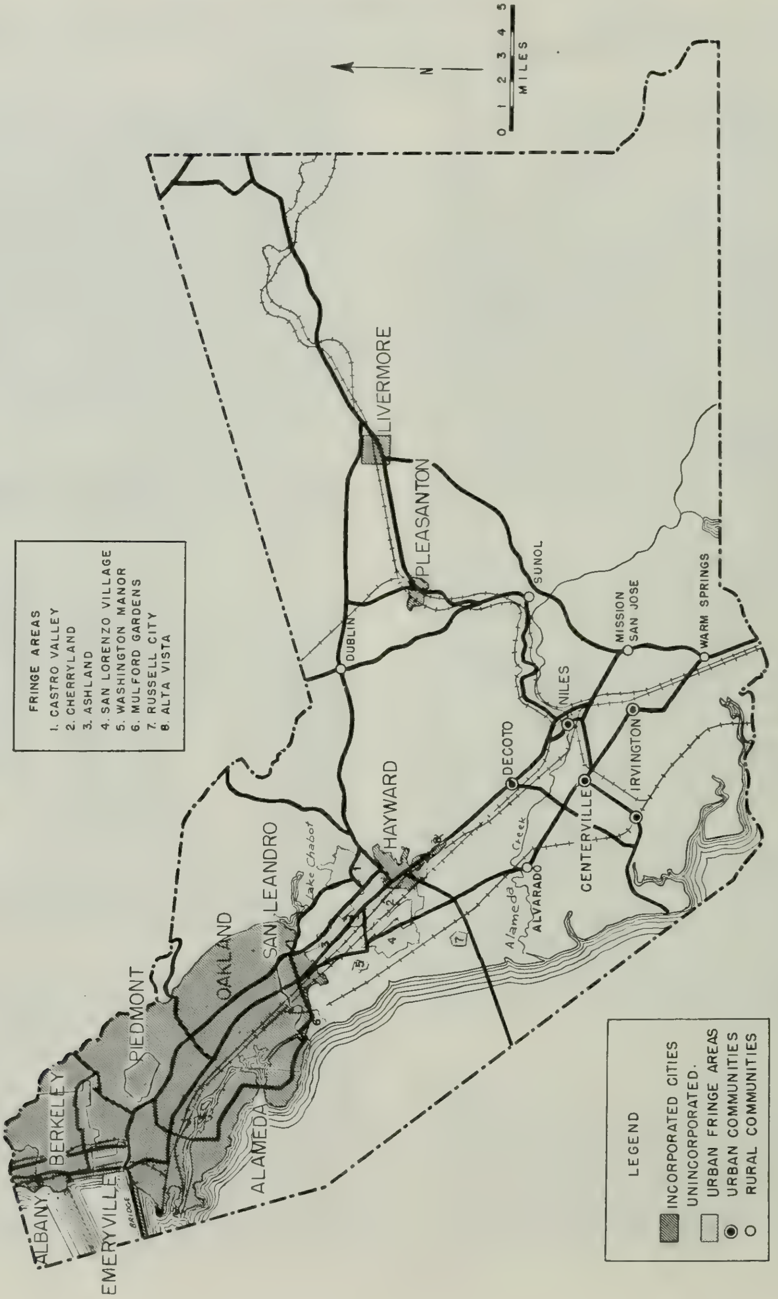
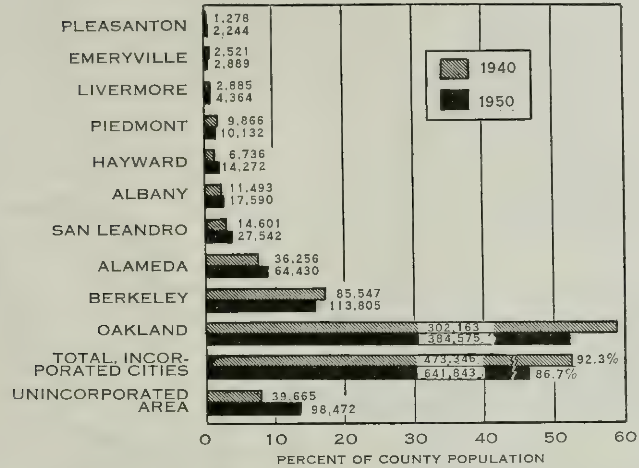


FIGURE 2

ALAMEDA COUNTY POPULATION OF CITIES AND UNINCORPORATED AREAS 1940 and 1950



Cities of Hayward and San Leandro. Washington Township, which was entirely unincorporated, included all of the county south of Eden and some territory more to the east. Pleasanton and Murray Townships constituted the eastern and western sectors, respectively, of the entire county area east of the hills.

Table 2 shows the population changes which occurred in the unincorporated portions of judicial townships during the period from 1940 to 1950. Eden Township showed the greatest population growth for areas outside cities. Its increase of 230.1 percent is in sharp contrast to the 120.4 percent for Pleasanton, 59.2 percent for Murray, and 29.5 percent for Washington. Even before 1940, Eden Township was one of the fastest growing areas in California, and this trend seems to be continuing. Housing areas in South Oakland and San Leandro are almost completely occupied, and the expected growth as predicted by the Pacific Gas and Electric Company of approximately 50,000 persons by December, 1952, might possibly lead population growth in all of Northern California.

TABLE 2

ALAMEDA COUNTY POPULATION CHANGES IN THE UNINCORPORATED PORTIONS OF TOWNSHIPS 1940 to 1950

	Population		*Percentage change*
	1940	*1950*	*1940 to 1950*
Alameda	---	---	--
Brooklyn [a]	---	---	--
Eden [a]	22,354	73,789	230.1
Murray	2,617	4,167	59.2
Oakland	---	---	--
Peralta [b]	---	---	--
Pleasanton	1,643	3,621	120.4
Washington	13,051	16,895	29.5
Total	39,665	98,472	148.3

NOTES:

[a] That part of Eden Township in Oakland City was annexed to Brooklyn Township in 1950. Parts of Eden Township annexed to Hayward City in 1940, 1947, 1948, 1949 and 1950 and to San Leandro in each year 1942 through 1950.

[b] Peralta Township organized from that part of Oakland Township ouside of Oakland City in 1950.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951.

The period from 1947 to 1951 was especially active in new residential construction, with more than 20,000 permits issued for homes, over 75 percent of which were in unincorporated territory. The total number of new dwelling units built in Eden Township, as indicated by building permits, is shown below. The data were provided by the Research Department of the Oakland Chamber of Commerce.

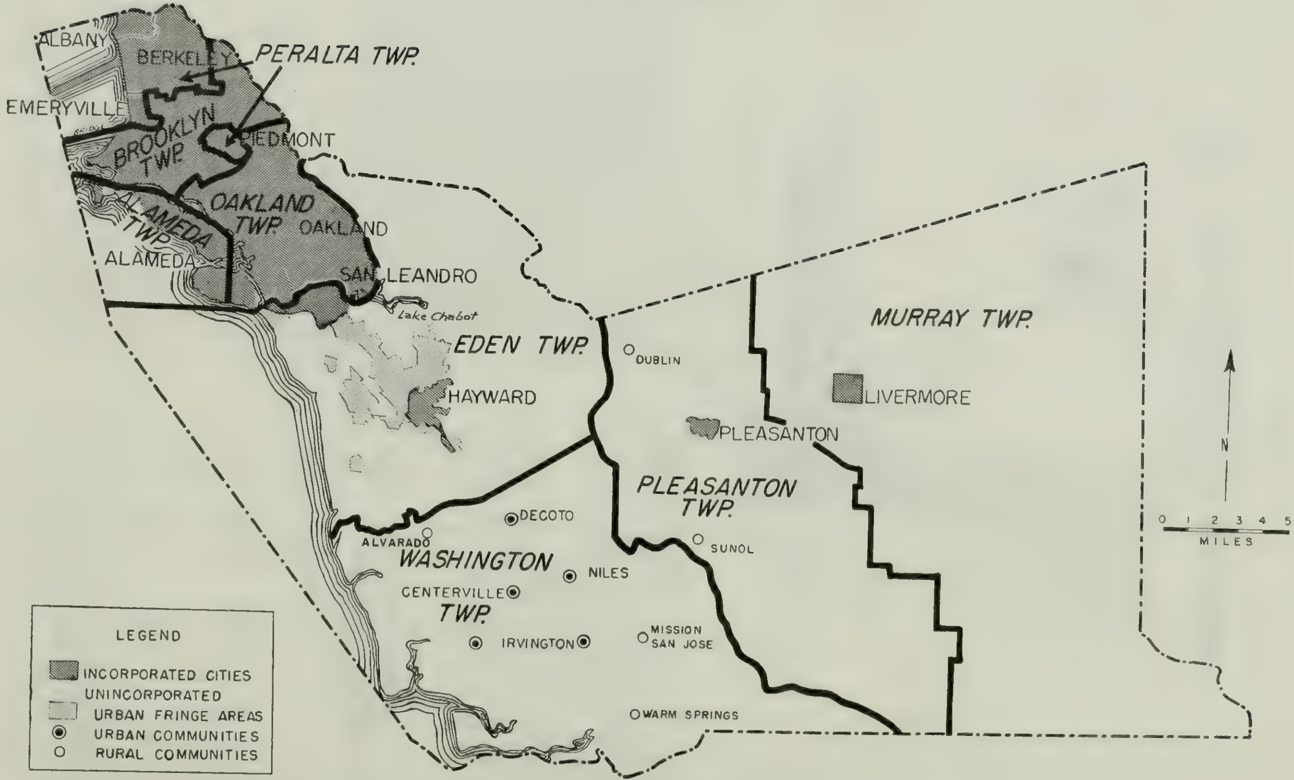
	1947	*1948*	*1949*	*1950*	*1951*	*Total— 5 years*
Hayward	237	272	708	1,559	721	3,497
San Leandro	239	192	123	267	337	1,158
Unincorporated area	2,830	2,905	2,178	3,867	4,023	15,803
Total	3,306	3,369	3,009	5,693	5,081	20,458

Of a total amount of $242,562,000 in new plant investments reported by the Bay Area Council for the nine Bay area counties during the period 1948 to 1950, about 25 percent represented industrial activity in Eden Township.

According to the Bureau of the Census, 94.7 percent of the population of the county in 1950 lived in urban

FIGURE 3

ALAMEDA COUNTY
JUDICIAL TOWNSHIPS



areas.[1] Except for San Francisco County, which is entirely incorporated, this percentage of urban population was the second highest of any county in the state, being exceeded only by Los Angeles County (97.5 percent). A large share of the urban population, or 86.7 percent of the total county population, lived inside cities, leaving a remainder of eight percent in the urban areas outside cities. Table 3 presents a distribution of the population of the county by cities, unincorporated urban areas and rural areas in 1950.

TABLE 3

ALAMEDA COUNTY
POPULATION BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS
1950

Areas	*Population*	*Percent of total county population*
Cities	641,843	86.7
Alameda	64,430	8.7
Albany	17,590	2.4
Berkeley	113,805	15.4
Emeryville	2,889	0.4
Hayward	14,272	1.9
Livermore	4,364	0.6
Oakland	384,575	51.9
Piedmont	10,132	1.4
Pleasanton	2,244	0.3
San Leandro	27,542	3.7
Unincorporated urban areas	66,958	9.0
Eden Township [a]	58,937	8.0
Castro Valley	17,894	2.4
Cherryland, Ashland and Washington Manor	24,794	3.3
San Lorenzo Village	13,782	1.9
Mulford Gardens	1,335	0.2
Russell City	1,132	0.2
Washington Township	8,021	1.1
Decoto	2,830	0.4
Newark	1,532	0.2
Niles	1,519	0.2
Centerville	1,401	0.2
Irvington	739	[b]
Rural areas	31,514	4.3
Total	740,315	100.0

NOTES:
[a] Estimated by the Oakland Chamber of Commerce, Research Department.
[b] Less than one-tenth of 1 percent.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950," Vol. I, "Number of Inhabitants," Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951.

In this table, 9.0 percent of county population is classified as unincorporated urban area population, due to the inclusion of areas which do not meet the census definition of an urban settlement.

Figure 4 shows the principal unincorporated urban areas as defined by the Bureau of the Census. These are primarily urban fringe areas within Eden Township. They lie for the most part between the Cities of San Leandro and Hayward. Figure 5 presents an aerial photograph of this area, viewed from the western side. A more complete view of all of the unincorporated urban areas which are treated in this report may be seen in Figures 1 and 2 preceding, which not only show the urban fringe areas, but also a number of urban communities which are not close to existing cities.

The unincorporated urban areas of Eden Township merit some description. Castro Valley is one of the largest of these areas and is predominantly residential, with a population estimated in 1950 at 17,894.[2] It also has a large business area along Castro Boulevard. The boundaries of the Castro Valley Fire Protection District closely follow the principal "population line" for this area. Castro Valley may be viewed as a northern fringe of the City of Hayward. The population of this fringe area exceeds the city's population by 3,500 persons, or about 25 percent. In contrast to much of the unincorporated development in Alameda County, Castro Valley's growth came about primarily through individual building or small-scale building projects of several houses at a time, rather than by way of enormous tract developments such as San Lorenzo Village.

The following special districts provide several types of governmental services to the community of Castro Valley: the Castro Valley County Fire Protection District; the Castro Valley Sanitary District; the Ora Loma Sanitary Districts 1 and 2; the Castro Valley County Water District; the East Bay Municipal Utility District; the Hayward Area Park, Recreation and Parkway District; and the Eden Township Hospital District.

The unincorporated communities of Ashland and Cherryland form an urban strip in the area between the City of San Leandro on the north and the City of Hayward on the south. Together with the smaller area known as Washington Manor, which has much new subdivision development and lies about one mile to the west, these communities had a combined population of 24,794 in 1950, according to the Oakland Chamber of Commerce. The land use pattern is largely residential, with some commercial and industrial enterprises. Considerable areas of undeveloped land are being held for future development. This urbanized area receives governmental services from a number of special districts including the Ashland County Fire Protection District; the Cherryland Fire Protection District; the Ora Loma Sanitary Districts 1, 2, 3, 4 and 5; the East Bay Municipal Utility District; the Hayward Area Park, Recreation and Parkway District; and the Eden Township Hospital District.

San Lorenzo Village is situated just west of the new East Shore Freeway, which separates it from the Ashland-Cherryland area described above. According to the Oakland Chamber of Commerce, the village comprised 3,525 homes and housed 13,782 persons in April of 1950. There is considerable community spirit in the village, manifested in the functioning of the San Lorenzo Village Homes Association, which has no administrative powers, but meets to discuss local problems and acts as the representative for the village residents. The San Lorenzo Village Homes Association is a private body instituted under the leadership of the subdivider who developed San Lorenzo Village tract. Its leadership consists of a board of directors chosen

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[1] U. S. Bureau of the Census, *U. S. Census of Population: 1950*, Vol. I, *Number of Inhabitants*, Chapter 5: California, U. S. Government Printing Office, Washington, D. C., 1951, p. 5-13.

[2] Research Department, Oakland Chamber of Commerce.

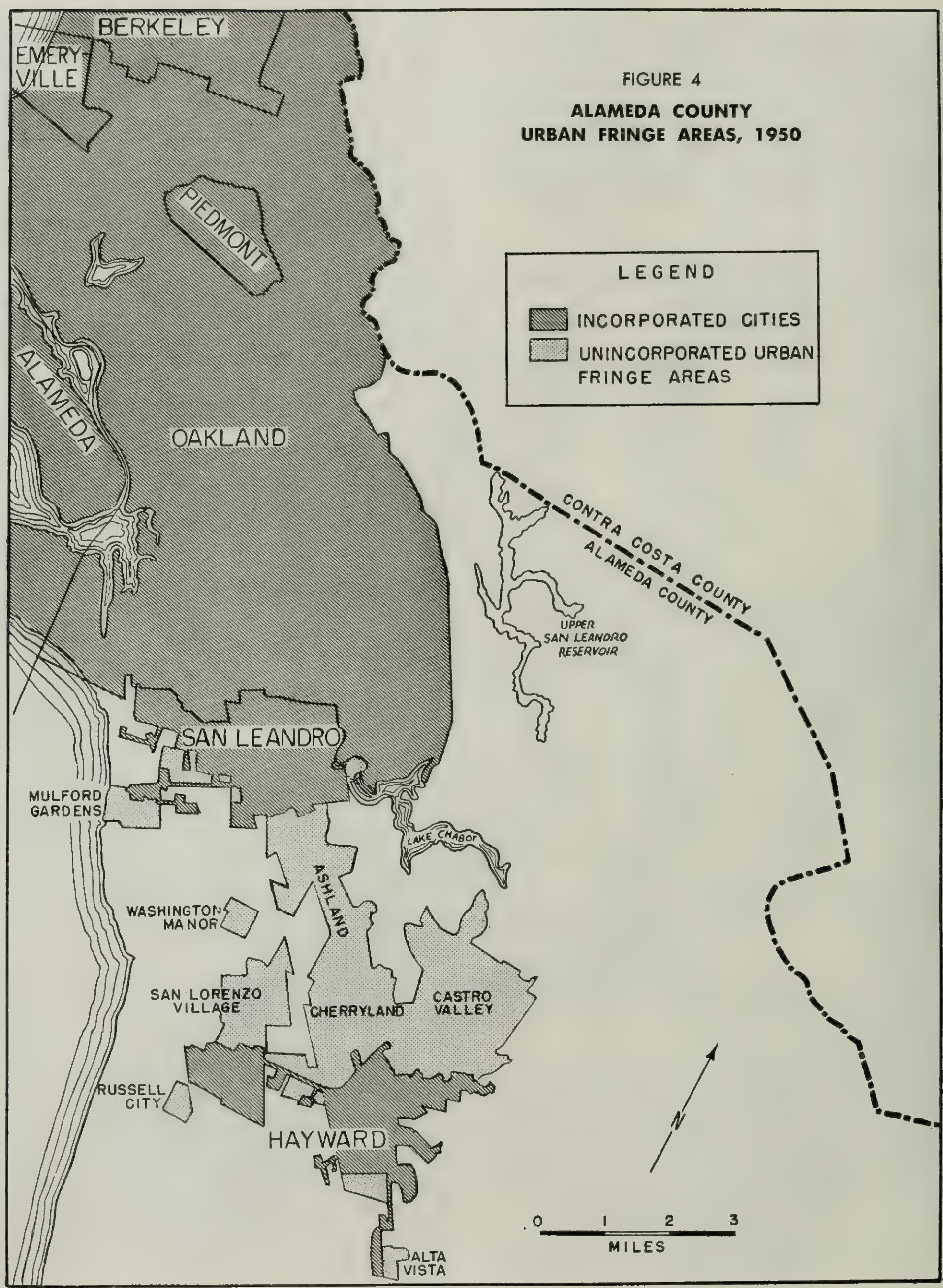
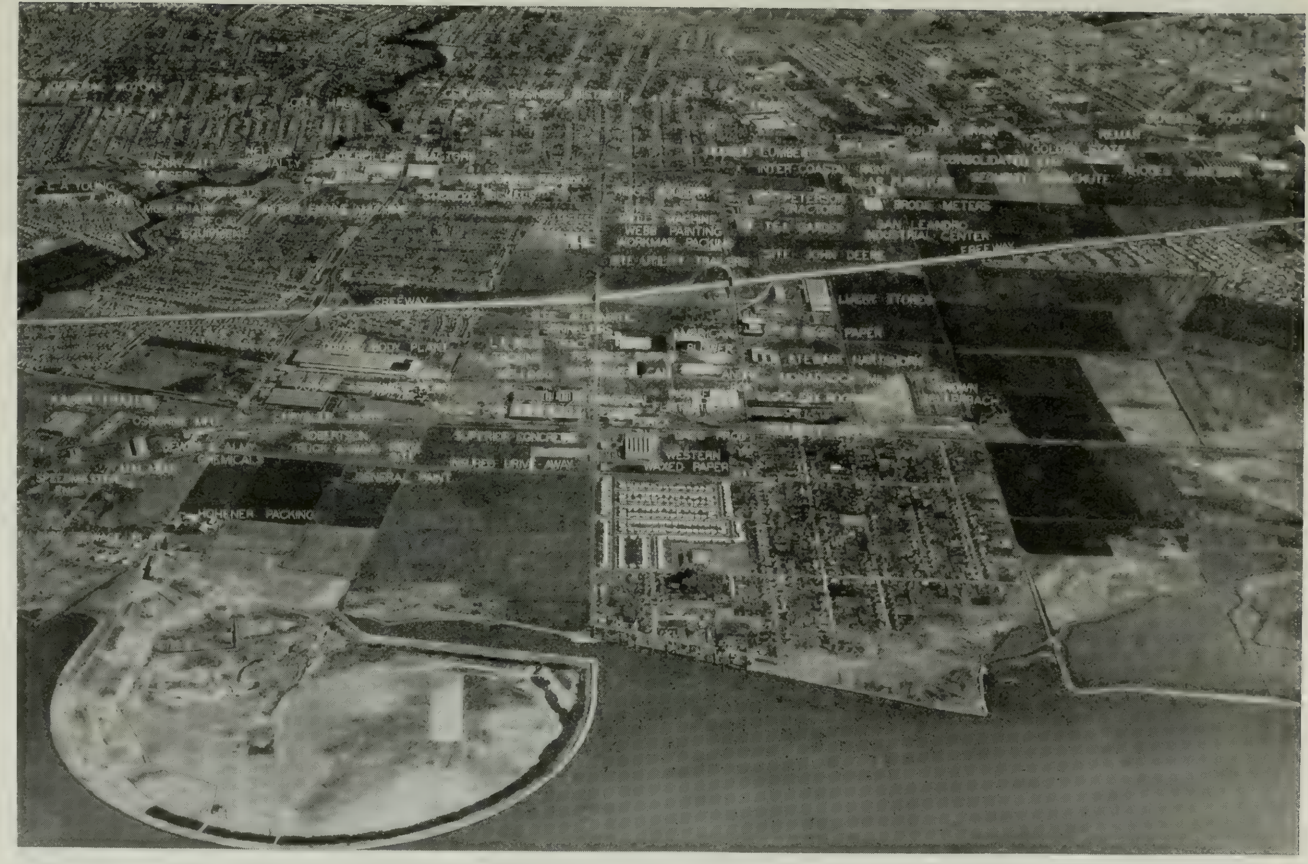


FIGURE 4

ALAMEDA COUNTY URBAN FRINGE AREAS, 1950

FIGURE 5

ALAMEDA COUNTY
THE CITY OF SAN LEANDRO AND SURROUNDING
AREAS, VIEWED FROM THE WEST, 1951



SOURCE: Picture supplied by R. L. Copeland of Piedmont, California.

by the residents of the village. The board exercises managerial functions with respect to certain services provided to the residents. Residents are assessed a flat fee of $24 per year, for which they receive the services described below.

Fire protection is the most important service privately performed in this area. A full-time fire chief and three firemen are employed to man fire-fighting equipment valued at $100,000. The Board of Fire Underwriters has placed San Lorenzo Village in Class 5, which is a moderately good rating. No fire protection service, other than on a sporadic mutual aid basis, is received by this area from nearby cities, the county, or adjacent fire protection districts (Mulford Gardens, Ashland, and Cherryland).

Street sweeping and tree trimming services are provided as needed. The neat appearance of the tract testifies to the adequacy of service. A park and playground is maintained by the association. For community meetings and other social gatherings, a community center building has been provided. A separate building is maintained for Boy Scout meetings and activties.

Control over building use exists by virtue of the covenant signed by each purchaser of a tract home. Each home purchaser agrees not to convert his home or add to it in such a way as to make it a two-family structure.

Mulford Gardens is another, but smaller, unincorporated area in Eden Township, being somewhat isolated from any other residential area. It comprises some 15 blocks of new subdivision housing situated just outside the southwest corner of San Leandro. Population in 1950 was estimated at 1,335 by the Research Department of the Oakland Chamber of Commerce. It lies very close to the bayshore and is surrounded by land presently used or reserved for industry. Mulford Gardens is served by the following special districts: the Mulford Gardens Fire Protection District; the Ora Loma Sanitary District No. 2; the East Bay Municipal Utility District; and the Eden Township Hospital District.

Russell City is a fourth unincorporated urban community in Eden Township. It is situated immediately south of the Hayward Airport, about three miles southwest of Hayward's central district. Russell City is much older than the unincorporated communities so far mentioned. Many of the residences are poorly built and in a state of disrepair. Population in 1950 was estimated at 1,132. It is located on land which is only a few feet above high tide level, and thus the community's soil conditions are hard on residential foundations and road surfaces, and make proper sanitation a difficult problem. Portions of this urban area are included in the Ora Loma Sanitary District No. 5; the Alameda County Water District; and the East Bay Municipal Utility District. All of Russell City lies within the Hayward Area Park, Recreation and Parkway District and the Eden Township Hospital District.

The remaining unincorporated areas in Eden Township are smaller than those so far described. They include (a) residential developments lying within one mile of Hayward's eastern boundary, in the general areas of Fairview and Hayward Highlands; (b) the community of Alta Vista, lying just outside the southern tip of Hayward; and (c) the crossroads center of Mt. Eden, halfway from Alta Vista along a line running westerly to the bay.

The only significant unincorporated urban areas outside Eden Township are found in Washington Township. Murray and Pleasanton Townships have minor urban areas which may be disregarded for purposes of this report. Villa Gulf, a federal housing project with some 800 people, lies just outside the eastern boundary of Livermore, in Murray Township. Other small centers east of the hills are Dublin and Sunol, in Pleasanton Township. Five areas which were small, urbanized communities had the following populations in 1950.

Community	*Population*
Decoto	2,830
Newark	1,532
Niles	1,519
Centerville	1,401
Irvington	739
Total	8,021

Three other areas, Alvarado, Mission San Jose and Warm Springs each had a population of less than 500. These areas were served by the special districts listed below:

Centerville County Fire Protection District
Decoto Fire Protection District
Irvington County Fire Protection District
Newark Fire Protection District
Niles Fire Protection District
Decoto Sanitary District
Irvington Sanitary District
Union Sanitary District
Union Sanitary District, Niles Annex
Union Sanitary District, Annex No. 1, No. 2 and No. 4
Alameda County Water District
Washington Township Hospital District

Assessed Valuations

The county ad valorem tax base of Alameda County amounted to $756,073,190 in 1951-52. The distribution of assessed valuations between cities, unincorporated urban areas and rural areas is shown in Table 4. Of the total county tax base, $652,639,655, or 86.3 percent, represented county assessed valuation inside cities; $51,351,110, or 6.8 percent, represented valuations in unincorporated urban areas; and $52,082,424, or 6.9 percent, represented the assessed valuations in the rural areas.

Table 5 compares the proportion of total county population with the proportion of the total county tax base in cities, unincorporated urban areas and rural areas. Of the total county population, 86.7 percent lived inside incorporated cities. The cities also contained 86.3 percent of the county property tax base. Unincorporated urban areas accounted for 9 percent of county population and 6.8 percent of assessed valuations. Rural areas included 4.3 percent of the population of the county and 6.9 percent of the ad valorem tax base. The difference between the percentage figures for the unincorporated urban areas is explained by the predominantly residential character of the large urban developments in the county.

TABLE 4

ALAMEDA COUNTY
ASSESSED VALUATIONS BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS
1951-52

Areas	*Assessed valuation*	*Percent of total county assessed valuation*
Cities	$652,639,655	86.3
Alameda	39,497,180	5.2
Albany	12,234,390	1.6
Berkeley	105,526,700	14.0
Emeryville	31,079,330	4.1
Hayward	19,064,540	2.5
Livermore	4,063,995	0.5
Oakland	391,568,665	51.8
Piedmont	17,802,335	2.4
Pleasanton	1,577,295	0.2
San Leandro	30,225,225	4.0
Unincorporated urban areas	$51,351,110[a]	6.8
Eden Township	39,953,730[a]	5.3
Castro Valley	[b]	
Cherryland, Ashland and Washington Manor	[b]	
San Lorenzo Village	[b]	
Mulford Gardens	[b]	
Russell City	[b]	
Washington Township	11,397,380[a]	1.5
Decoto	1,352,650[c]	0.2
Newark	3,698,600[d]	0.5
Niles	3,331,530	0.4
Centerville	1,873,700[c]	0.2
Irvington	1,140,900[c]	0.1
Rural areas	52,082,425[a]	6.9
Total	$756,073,190	100.0

NOTES:
[a] Estimated from school and special district valuations.
[b] Breakdown of estimated total not available.
[c] Estimated at 50 percent of fire district valuation.
[d] Estimated at 75 percent of fire district valuation.
SOURCE: Data supplied by the Alameda County Auditor.

Recent Annexations in Alameda County

The Cities of San Leandro and Hayward have had substantial additions through annexation in recent years, especially since 1945. For both cities the direction of this annexation has been to the west and southeast, and considerable amounts of industrial property have been added to their assessment rolls through this process, particularly in the case of San Leandro.

Details on recent annexations in Alameda County are reported by the county surveyor as shown below, for the period from September 21, 1946, to February 1, 1952.

City	*Area before annexations*	*Number of annexations*	*Area*		*City area after annexations*	*Percentage area increase*
			Acres	*Square miles*		
San Leandro	3.58	54	1,098	1.72	5.3	48.0
Hayward	1.89	40	1,732	2.71	4.6	143.4
Livermore	1.45	2	163	0.25	1.7	17.2

There appears to have been no sentiment favoring annexation on the part of the residents of urban unincorporated areas. The fact that most of the urban areas are adequately provided with water and with sewage facilities by the East Bay Municipal Utility District, and also by sanitary districts, undoubtedly has had much to do with a continued disinterest in annexation proceedings. Annexation has been more successful elsewhere in the case of fringe areas which have had to be annexed to a city in order to obtain desired standards of utility services.

TABLE 5

ALAMEDA COUNTY
PERCENTAGE DISTRIBUTION OF POPULATION IN 1950 AND ASSESSED VALUATIONS IN 1951-52, BY AREAS

Area	*Percent of total population 1950*	*Percent of total assessed valuation 1951-52*
Cities	86.7	86.3
Alameda	8.7	5.2
Albany	2.4	1.6
Berkeley	15.4	14.0
Emeryville	0.4	4.1
Hayward	1.9	2.5
Livermore	0.6	0.5
Oakland	51.9	51.8
Piedmont	1.4	2.4
Pleasanton	0.3	0.2
San Leandro	3.7	4.0
Unincorporated urban areas	9.0	6.8
Eden township	8.0	5.3[a]
Castro Valley	2.4	--
Cherryland, Ashland and Washington Manor	3.3	--
San Lorenzo Village	1.9	--
Mulford Gardens	0.2	--
Russell City	0.2	--
Washington Township	1.1	1.5
Decoto	0.4	0.2
Newark	0.2	0.5
Niles	0.2	0.4
Centerville	0.2	0.2
Irvington	[b]	0.1
Rural Areas	4.3	6.9
Total	100.0	100.0

NOTES:
[a] Data for individual areas were not available.
[b] Less than one-tenth of 1 percent.
SOURCE: Tables 3 and 4.

SPECIAL DISTRICTS IN ALAMEDA COUNTY

Before examining the services provided by the various departments of the county, the use of special districts to secure certain types of service in Alameda County should be reviewed. As of March 1952, there were 34 special districts in Alameda County. The Alameda County Board of Supervisors acted as the governing body for 12 of these districts, while the remaining 21 were governed by local boards. Fire protection districts (16) were the most numerous, with sanitary district (six) next and water districts (four) third. The assessed valuations of these districts, together with their budgeted expenditures in fiscal 1952 are presented in Table 6.

Fire Protection Districts

There were 16 fire protection districts in the county, eight under the board of supervisors and eight governed by local boards. Eight fire districts provided protection in the unincorporated urban areas situated

TABLE 6

ALAMEDA COUNTY

ASSESSED VALUATIONS AND EXPENDITURES OF SPECIAL DISTRICTS

1951-52

			Assessed valuation				
Type of district	*Number of districts*	*Governed by*	*Total amount*	*As a percent of total county valuation*	*Amount in unincorporated areas*	*Valuation in unincorporated areas as a percent of total district valuation*	*Budgeted operational expenditures 1951-52* [a]
Fire protection	8	Local Boards	$23,473,430 [b]	3.1	$22,504,060	95.9	$203,592
Fire protection	8	Board of Supervisors	41,496,835	5.5	41,496,835	100.0	361,443
Hospital	2	Local Boards	137,816,010 [c]	18.2	88,525,935	64.2	283,330
Lighting	1	Board of Supervisors	5,636,055	0.7	5,636,055	100.0	45,250
Park, recreation and parkway	2	Board of Supervisors	80,606,015 [d]	10.7	54,577,480	67.7	202,183
Sanitary	6	Local Boards	54,100,655 [e]	7.2	53,434,845	98.8	304,031
Water	4	Local Boards	32,994,670	4.4	32,994,670	100.0	129,500
Utility	1	Local Board	672,161,470 [f]	88.9	44,010,610	6.6	---
Flood control and water conservation	1	Board of Supervisors	756,073,190	100.0	103,433,535	13.7	73,000
Mosquito abatement	1	Local Board	756,073,190	100.0	103,433,535	1.37	150,790

NOTES:

[a] Bond interest and principal requirements are not included.

[b] Cherryland, Fairview and Tennyson Fire Districts include portions of Hayward; Mulford Gardens Fire District includes a portion of San Leandro.

[c] Eden Township Hospital District includes all of Hayward and San Leandro and a small portion of the City of Oakland.

[d] Hayward Area Park, Recreation and Parkway District includes the City of Hayward; Livermore Area Park, Recreation and Parkway District includes the City of Livermore.

[e] Ora Loma Sanitary Districts Nos. 1, 4, 5 and 6 include portions of the City of Hayward; Ora Loma District No. 2 contains a portion of San Leandro.

[f] This figure represents the valuation of those portions of the East Bay Municipal Utility District which lie within Alameda County only. The cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont and San Leandro lie entirely within the district. About 1 percent of Hayward is inside. The remaining valuation of $44,010,610 represents unincorporated areas around Hayward and San Leandro (including the densely built up communities of Castro Valley and San Lorenzo Village), plus scattered areas in the area lying west of the two cities, toward the bay.

SOURCE: "Preliminary Budget and Financial Report, Fiscal Year 1951-1952," Alameda County.

in the San Leandro-Hayward region. The urban communities of San Lorenzo Village, Russell City and Mt. Eden were not, however, included within any of these districts. The latter two areas were served by the county, but San Lorenzo Village had its own local fire department provided by its own community organization. The remaining eight fire protection districts included the smaller urban communities toward the southern end of Alameda County, such as Newark, Niles, Decoto and Irvington. They also included considerable rural area within their boundaries.

The assessed valuations of these 16 fire districts ranged from a high figure of almost 18 million dollars for the Ashland County Fire Protection District, to a low figure of $363,445 for the Hayward Highlands Fire District. These two districts also showed the highest and lowest budgeted expenditures for 1951-52, amounting to $160,573 and $2,188, respectively. The aggregate amount budgeted by all 16 fire districts, as shown in Table 6, totaled approximately $565,000. If the total valuation of all fire districts is added to the assessed valuation inside cities, almost 95 percent of the entire county tax base is accounted for. Taken in combination with the significant amounts budgeted by the fire districts, this means that areas involving only about 5 percent of the county tax base require fire protection services from the county.

Lighting Districts

The San Lorenzo Village Lighting District is the only special district providing street lighting services in Alameda County. Its boundaries are roughly coterminous with those of the subdivision bearing this same name, and they include an area with a total assessed valuation of $5,636,055. For 1951-52, expenditures of $45,250 were budgeted for this lighting district. Since the county itself does not provide street lighting except for traffic safety purposes, the existence of this lighting district does not directly affect county operations in this field.

Park, Recreation and Parkway Districts

There are two special districts which provide park and recreation services. Only one of these, however, is currently operating on a significantly large scale. The Hayward Area Park, Recreation and Parkway District has boundaries coterminous with those of the Hayward Union High School District, including over 70 million dollars in assessed valuations. It not only includes the City of Hayward, but unincorporated urban and rural areas such as Castro Valley, San Lorenzo and Palomares. These latter areas provide more than 70 percent of the total tax base of the district. The 1951-52 approved budget for this district was $139,650. The district provided sports, clubhouses, day camping, dramatics, folk dancing, handcrafts and special events, all conducted at the various community centers, playgrounds and other facilities owned and operated by it.

The Livermore Area Park, Recreation and Parkway District included the City of Livermore and a large part of the surrounding area. The tax base of the district was approximately $10,500,000 but budgeted expenditures for 1951-52 were only $19,835, indicating a small scale of operation.

County Services Provided to Special Districts

Alameda County provides certain administrative services to the 12 districts governed by the board of supervisors. No data are available as to the extent of such services or the value thereof, except the estimate of the county administrative officer with respect to services provided to districts by the district attorney. These services were estimated at $37,740 for fiscal 1951.

A number of overhead services are provided to special districts by the county, without charge. These include property assessment and tax collection. The East Bay Municipal Utility District is the one exception; this district paid the county $4,443 in fiscal 1951 for tax collections, which amounted to more than 2 million dollars. The county civil service commission acts as the personnel agency for the park and flood control districts and, as indicated, legal service is provided by the district attorney's office. The county auditor provides accounting and auditing services for all districts, and the treasurer performs treasury duties for them. The county surveyor is also chief engineer for the flood control district.

CITY SERVICES EXTENDED TO OUTSIDE AREAS

Table 7 shows the total and per capita expenditures of the cities in Alameda County for various services of concern to this study. The common boundaries of the East Bay cities (Albany, Berkeley, Emeryville, Oakland, Piedmont and Alameda) mean, of course, that in each case many of the nonresidents who receive services from any one city are residents of another city rather than an unincorporated area. Table 8 presents the specific services provided to non-city residents and to other units of government and indicates whether the service is provided free or on the basis of some charge. These services and the bases upon which they are extended to outside residents are discussed below.

TABLE 7

ALAMEDA COUNTY
CITY EXPENDITURES FOR SELECTED FUNCTIONS[a]
1950-51

	General government		Planning		Police protection[b]		Fire protection[b]		Dog pound		Health		Streets		Recreation	
City	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita
Alameda	$191,838	$2.98	$1,104[c]	$0.02	$340,029	$5.28	$370,633	$5.75	$4,697[c]	$0.07	$83,039	$1.29	$581,659	$9.03	$246,503	$3.83
Albany	41,564	2.36	--------	------	82,943[c]	4.72	83,376[c]	4.74	4,141[c]	0.24	9,774	0.56	76,620	4.36	49,821	2.83
Berkeley	501,252	4.40	29,255	0.26	635,710[c]	5.59	815,755[c]	7.17	13,908[c]	0.12	121,240	1.07	819,835	7.20	455,495	4.00
Emeryville	29,445	10.19	--------	------	71,487[c]	24.74	186,748[c]	64.64	--------	------	600	0.21	38,655	13.38	--------	------
Hayward	95,589	6.70	5,495[c]	0.39	131,135	9.19	101,944	7.14	--------	------	3,827	0.27	124,864	8.75	67,225	4.71
Livermore	17,438	4.00	--------	------	31,161[c]	7.14	22,408[c]	5.13	713[c]	0.16	892	0.20	77,214	17.69	5,837	1.34
Oakland	1,276,708	3.32	126,846[c]	0.33	3,614,435[c]	9.40	3,009,452	7.83	22,661	0.06	654,138	1.70	3,763,261	9.79	1,916,510	4.98
Piedmont	44,370	4.38	--------	------	90,233[c]	8.91	94,806[c]	9.36	--------	------	--------	------	159,388	15.73	100,261	9.90
Pleasanton	10,380	4.63	--------	------	16,624	7.41	3,389	1.51	--------	------	720	0.32	15,640	6.97	433	0.19
San Leandro	78,257	2.84	875[c]	0.03	144,897[c]	5.26	147,034	5.34	--------	------	1,500	0.05	177,288	6.44	64,476	2.34
Totals	$2,286,841	$3.56	$163,575	$0.25[d]	$5,158,654	$8.04	$4,835,545	$7.53	$46,120	$0.07[d]	$875,730	$1.36[d]	$5,834,424	$9.09	$2,906,561	$4.53[d]

NOTES:

[a] Includes operation, maintenance and capital outlay.

[b] The amount shown under "Outlays" in the protection to persons and property classification is divided equally between police and fire protection.

[c] Data from financial statements of the various cities for 1950-51.

[d] Computed only on the basis of cities showing expenditures for such services.

SOURCE: Unless otherwise indicated, data are from the "Annual Report of Financial Transactions of Municipalities and Counties of California for the Fiscal Year Ending June 30, 1951," Office of the State Controller, Sacramento, Tables 4 and 7.

TABLE 8

ALAMEDA COUNTY
CITY SERVICES PROVIDED TO NONCITY RESIDENTS AND TO OTHER GOVERNMENTAL UNITS
1951

	General government		Police protection		Care of county prisoners		Fire protection		Health		Utilities		Recreation		Library	
Cities	Charge	No charge	Charge	No charge	Charge	No charge	Charge	No charge	Charge	No charge	Charge	No charge	Charge	No charge	Charge	No charge
Alameda	x								x					x		
Albany	x					x								x		
Berkeley	x						x		x	x	x	x		x	x	
Emeryville																
Hayward	x										x				x	
Livermore			x				x							x		x
Oakland	x									x			x	x	x	
Piedmont		x														
Pleasanton		x						x				x		x		
San Leandro		x							x	x	x			x	x	

SOURCE: Questionnaires completed by officials of the various cities.

City Services Involving Charges

General Government Services. All cities except Livermore and Emeryville provide some services to departments of Alameda County. For the most part this service consists of space in the city hall for county court or health department activities. In most instances such space is provided to the county, as shown in Table 8, on the basis of contractual rental charges. The Cities of Piedmont, Pleasanton and San Leandro, however, provide these services to the county without charge. The City of Oakland also charges the county for various tabulating services.

Protection to Persons and Property. Livermore furnishes police and fire protection to the Villa Gulf Federal Housing Project, located immediately adjacent to the city limits. The Federal Government pays Livermore $1,000 per year for this service.

Under the provisions of a contract with the Berkeley Woods and Park Hills Fire District, the City of Berkeley furnishes fire protection to an estimated 500 persons in these two small residential areas. The fire district pays $2,500 annually for this service, and installs its own hydrants as needed. The area is connected with the fire alarm board of the City of Berkeley.

Health and Sanitation. The City of Berkeley furnishes the service of its city dump to nonresidents, but a charge is made for this service. San Leandro collects refuse from a few homes located outside the city limits but charges for this service. The City of Alameda conducts health laboratory tests for the county on a fee basis.

Utilities. The City of Hayward provides sewer service to 1,300 customers outside the city. Each nonresident user pays a fee of $25 per year, or 75 percent of the amount of property taxes the user would pay if he were in the city, whichever is greater. Hayward also extends city water to 2,470 connections for a charge of 45 percent higher than the charge inside the city. San Leandro serves 11 sewer connections on a temporary basis pending annexation of the areas involved. Charges are made on various bases. City officials of San Leandro have opposed the extension of services outside the city on the ground that it discourages annexation. Pleasanton extends water service to 48 outside users. No charge, except for installation, is made.

Library. Residents of Piedmont use the city library facilities of Oakland under a contract which requires a payment of $3 for every Piedmont resident who avails himself of the service. Other cities also charge special fees for the use of city libraries by noncity residents. The fees charged, the total number of cardholders, the number of nonresident cardholders, and the city expenditures for library service are tabulated below. The data are for 1950-51. The charge for library use is not collected by Berkeley, Oakland and San Leandro if the user works, owns property or attends school in these cities. Hayward shows the largest proportion of outside users, 14 percent; while Oakland shows the smallest proportion, 2 percent.

City	*Total number of cardholders*	*Nonresident cardholders*	*Special charges to nonresidents (per year)*	*City expenditures*
Berkeley	45,276	4,500	$2.00	$161,797
Hayward	3,544	484	3.00	24,974
Oakland	97,700	2,000	3.00	748,662
San Leandro	21,000	2,310	3.00	46,099
Totals	167,520	9,294		$981,532

City Services Provided Without Charge

General Government Services. The Cities of Piedmont, Pleasanton and San Leandro from time to time provide space to the county for public health department and court activities. No charges are made to the county.

Protection to Persons and Property. The City of Albany holds county prisoners on a temporary basis, for which no charge is made. San Leandro has written orders on file which forbid use of its fire-fighting equipment outside the city in answer to a direct private call but, like other cities, sends its fire-fighting forces beyond the city limits if specifically requested to do so by the county or by a fire district.

Pleasanton provides outside fire protection on a basis other than that of mutual aid. The city has a volunteer fire department, headed by a part-time fire chief. Expenses are met largely through fund-raising dances and other events, and some equipment has been purchased from funds raised in this manner. This equipment is used both inside and outside the city. The operational radius of Pleasanton's volunteer fire department is about five miles, which includes the communities of Dublin and Sunol. In the case of serious fires, the county responds with equipment from the county station at Livermore. In 1950-51, a total of 68 fires were fought by the Pleasanton force, of which 52 (76 percent) were *outside* the city.

Health and Sanitation. The City of Oakland through its health clinic provides free venereal disease treatment to any nonresident. Negotiations are currently in progress with the City of Berkeley covering compensation to Oakland for Berkeley residents using the clinic. The City of Berkeley provided city ambulance service on six calls in the Tilden Regional Park (outside the city limits) during 1950-51. No charges were made for this service. San Leandro also reported city ambulance runs on a few calls outside the city.

Utilities. Berkeley has less than 10 sewer connections in Contra Costa County and makes no charge for the service.

Recreation and Parks. Emeryville and Piedmont maintain no city recreational facilities, relying entirely on school areas and equipment. Livermore and Pleasanton have small park areas which receive ''some'' use by nonresidents, while Hayward lies within the Hayward Area Park, Recreation and Parkway District. Since the expenses of the district are met by all of the residents of the Hayward High School District, which has boundaries coterminous with the Park, Recreation and Parkway District, no question arises here with respect to nonresident use of a city park.

The five remaining cities spend sizable amounts on recreational and park facilities within their limits and report varying amounts of nonresident use. Except for charges made for use of Oakland's golf course and Children's Fairyland, all nonresident use is free. Alameda reported that the Washington Park beach, the only beach area in the entire East Bay region, was used by an estimated 90,000 persons in 1951. Undoubtedly a large proportion of these users were not residents of the City of Alameda. Berkeley reported outside use to an extent of approximately 20 percent, based on spot checks by recreational directors at playgrounds. Albany and Oakland reported that nonresidents used their facilities "to some extent," but provided no substantiating data.

The City of San Leandro reported that outside use of its recreational facilities has averaged some 35 percent over the past four years. The city has communicated with the county concerning the possibility of county participation in the financing of the city's recreational facilities. In April of 1950 the city requested the county board of supervisors to contribute financial aid in the amount of at least 25 percent of the recreational budget. The board, however, replied that county financial assistance "would not be practicable at this time," but added that it could make available to San Leandro, as it was already doing for the Oakland Recreation Department, certain amounts of county-employed indigent labor to be used for maintenance work on city park and recreational projects. The City of San Leandro to date has not accepted any of this labor service.

Residents of seven cities in Alameda County also contribute to the support of the East Bay Regional Park District, which operates Tilden Regional Park. This park has an area of 4,129 acres, 3,142 acres lying in Contra Costa County. The only cities not included are Livermore, Pleasanton, and Hayward. Residents of these cities pay a tax rate of $0.05 per $100 of assessed valuation to support this park. Alameda County makes no contribution to the district. The majority of the services supplied by this park involve no charge, and it draws a heavy attendance from a radius conservatively estimated at 20 miles.

Library. Every city that has its own library reports that residents from outside avail themselves of city library service, although the extent of such outside use varies considerably. Much of the outside use experienced by cities in the metropolitan area is by residents of neighboring cities. Only two cities, however, do not levy a differential charge upon nonresident borrowers. Alameda, which reports some 25 noncity borrowers, out of a total of 17,356 borrowers, asks for a $5 deposit which is returnable and Livermore, which reports 150 nonresident borrowers out of a total of 840, applies no charge to these borrowers.

COUNTY SERVICES

County Expenditures and Revenues

Figure 6 presents the distribution of county revenues, by general source, and county expenditures, by general functional categories. For fiscal 1952, the total budgeted expenditures of Alameda County amounted to $47,486,318. Table 9 shows these expenditures by general budget classifications. A detailed statement of expenditures within each general function is presented in Appendix D, Table 1. The first column of Table 9 shows the amounts actually budgeted while the third column shows these amounts adjusted so as to make these functions in Alameda County comparable with those of other counties studied in this report. Among these various functions, expenditures for charities and corrections, including the categorical aid programs, were the largest, contributing 59.6 percent of total expenditures. General government services ranked second, amounting to 11.8 percent of total expenditures; and roads and bridges ranked third, amounting to 8.8 percent of the total.

TABLE 9

ALAMEDA COUNTY

COUNTY EXPENDITURES BY GENERAL FUNCTION

1951-52

	Expenditures			
General function	*Budget amounts*	*Percent of total*	*Adjusted budget amounts*[a]	*Percent of total*
General government	$7,749,475	16.3	$5,586,933	11.8
Protection to persons and property	2,385,720	5.0	2,144,995	4.5
Health and sanitation	1,000	[b]	361,303	0.8
Roads and bridges	4,106,940	8.6	4,199,772	8.8
Recreation	567,096	1.2	567,096	1.2
Charities and corrections	28,150,609	59.3	28,253,680	59.6
Education	292,738	0.6	292,738	0.6
Interest and debt retirement	299,500	0.6	299,500	0.6
Reserve funds	2,492,600	5.2	2,492,600	5.2
Miscellaneous	1,440,640	3.0	3,287,701[c]	6.9
Total	$47,486,318	100.0	$47,486,318	100.0

NOTES:

[a] Adjusted to a standard functional classification adopted in this study for purposes of making intercounty comparisons.

[b] Less than one-tenth of 1 percent.

[c] This amount was classified under "General Government" and was for the construction of hospital and county buildings and for the land for these buildings.

SOURCE: "Preliminary Budget and Financial Report, Fiscal Year 1951-1952," Alameda County.

The revenues and balances budgeted to meet county expenditures in fiscal 1952 are presented in Table 10. The largest single source of revenue for the county came from state subventions. These subventions supplied 30.7 percent of total available funds and along with federal subventions, amounting to 16.7 percent, brought the total amount of subvened money to 47.4 percent of the total funds available. The county-wide property tax ranked second and produced 29.2 percent of the revenues needed. Balances, in turn, supplied 18 percent, and administrative receipts provided 5.1 percent of the funds needed to finance the 1952 budget.

Of special concern to this report are the state subventions for county road and general government purposes. These subventions for 1951-52 are shown below and in Table 11 estimates of the amounts which may

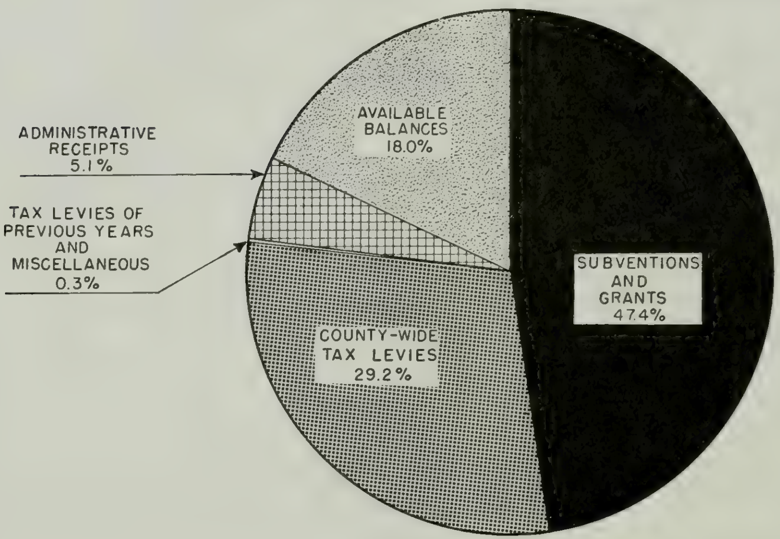
FIGURE 6

ALAMEDA COUNTY

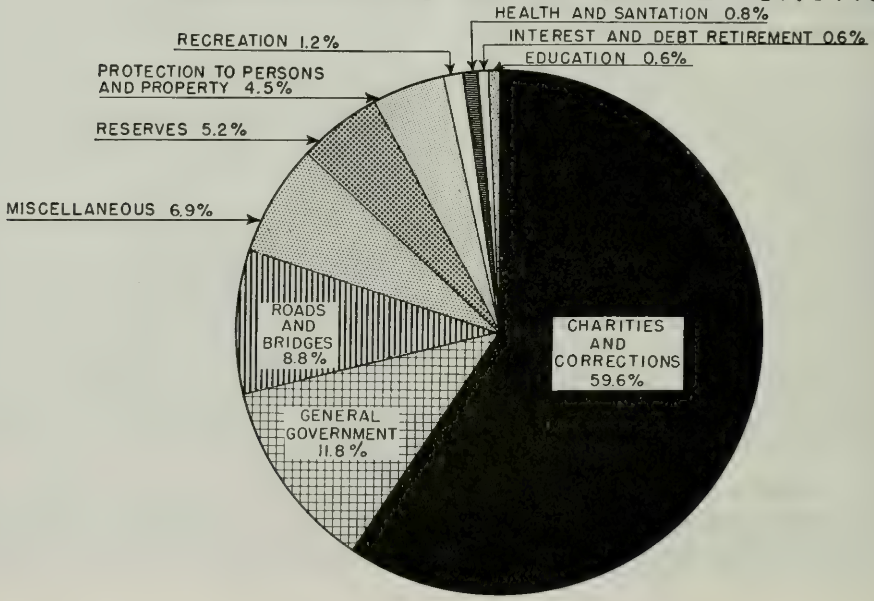
DISTRIBUTION OF REVENUES AND EXPENDITURES

1951-52

REVENUES BY GENERAL SOURCE



EXPENDITURES BY GENERAL FUNCTION



be traced as paid by city and noncity residents are provided.

Subvention	*Amount*	*County fund to which allocated*
Motor Vehicle Fund and Motor Vehicle Fuel Tax Fund	$2,590,403	Good roads
Motor Vehicle License Fee Fund (in lieu tax)	1,848,133	General
Alcoholic Beverage License Fees	42,031	General
Total	$4,480,567	

Approximately 39 percent of the total revenues shown in Table 10 may be traced with reasonable accuracy to taxpayers living in incorporated and unincorporated areas. Table 11 presents a distribution of traceable revenues by city and noncity residents and by county fund. Total traceable revenues amount to $18,342,003 of which $15,812,000, or 86.2 percent, are credited to city taxpayers and $2,529,000, or 13.8 percent are credited to taxpayers in unincorporated areas. All property tax revenues are credited to one group or the other on the basis of the relative amounts of the county tax base inside and outside cities. Similarly, state subventions for road and general govern-

TABLE 10

ALAMEDA COUNTY
COUNTY REVENUES AND BALANCES
1951-52

Source	*Amount*	*Percent of total*
Property taxes	$14,021,436	29.5
Basic county-wide ad valorem tax	13,861,436	29.2
Levies of previous years	140,000	0.3
Mandatory special taxes	20,000	[a]
Subventions and grants	22,528,674	47.4
State	14,596,776	30.7
Federal	7,931,898	16.7
Administrative receipts	2,408,348	5.1
Licenses and permits	109,000	0.2
Fines and penalties	203,500	0.4
Privileges	21,820	[a]
Fees and commissions	768,560	1.6
Rent, interest, and sales	278,000	0.6
Special services	390,400	0.8
Intergovernmental services	269,200	0.6
Miscellaneous	367,868	0.8
Available balances	8,527,860	18.0
Total	$47,486,318	100.0

NOTE: [a] Less than one-tenth of 1 percent.

SOURCE: "Preliminary Budget and Financial Report, Fiscal Year 1951-1952," Alameda County.

TABLE 11

ALAMEDA COUNTY
TRACEABLE COUNTY REVENUE ITEMS, FUND TO WHICH ALLOCATED, AND AMOUNTS ESTIMATED AS PAID BY CITY AND NONCITY RESIDENTS
1951-52

		Traceable revenues as a percentage of:			*Traceable revenues estimated as paid by city residents*		*Traceable revenues estimated as paid by noncity residents*	
Traceable revenue items and funds to which allocated	*Traceable current revenues*	*Total revenues and balances*	*Revenue item*	*Current fund requirement*	*Amount*[a]	*Percent of fund requirement*	*Amount*[a]	*Percent of fund requirement*
County-wide property taxes								
General fund	$1,217,998	2.6	8.8	16.3	$1,051,000	14.1	$167,000	2.2
Salary fund	3,836,978	8.1	27.7	66.9	3,312,000	57.7	525,000	9.2
Subtotal	$5,054,976	10.6	36.5	38.3	$4,363,000	33.0	$692,000	5.3
Advertising fund	197,809	0.4	1.4	87.9	171,000	76.0	27,000	11.9
Forestry fire fund	52,938	0.1	0.4	87.7	46,000	76.2	7,000	11.5
Exposition fund	59,844	0.1	0.4	58.6	52,000	50.9	8,000	7.7
Veterans memorial building fund	85,865	0.2	0.6	15.0	74,000	12.9	12,000	2.1
Courthouse and hall of records bond interest and redemption fund	99,038	0.2	0.7	84.0	85,000	72.9	14,000	12.0
Care and maintenance of indigent and dependent poor fund	6,827,767	14.4	49.3	71.4	5,894,000	61.6	934,000	9.8
Welfare and security fund	1,241,216	2.6	9.0	7.1	1,071,000	6.1	170,000	1.0
Physically defective or handicapped children fund	70,001	0.1	0.5	75.4	60,000	64.6	10,000	10.8
County relief bond interest and redemption fund	171,982	0.4	1.2	94.1	148,000	25.2	24,000	13.2
Total—County-wide property taxes	$13,861,436	29.2	100.0	29.2	$11,964,000	25.2	$1,897,000	4.0
Subventions								
General fund (in lieu tax and alcoholic beverage control licenses)	$1,890,164	4.0	100.0	25.3	$1,602,000	21.4	$288,000	3.9
Good roads fund (motor vehicle fuel tax)	2,590,403	5.4	100.0	56.5	2,246,000	49.0	344,000	7.5
Total—Subventions	$4,480,567	9.4	100.0	37.2	$3,848,000	31.9	$632,000	5.2
Total traceable revenues	$18,342,003	38.6	100.0	38.6	$15,812,000	33.3	$2,529,000	5.3
Percent of traceable revenues	100.0				86.2		13.8	

NOTE: [a] Allocations credited to city and noncity residents from ad valorem revenues were computed on the basis that 86.3 percent of the 1951-52 assessed valuations was inside incorporated cities; from subventions, on the basis that 86.7 percent of the 1950 population was inside cities; and the alcoholic beverage control subvention was entirely credited to unincorporated areas. Totals may not add due to rounding.

SOURCE: "Preliminary Budget and Financial Report, Fiscal Year 1951-1952," Alameda County.

ment purposes have been traced to the taxpayers of incorporated and unincorporated areas on the basis of population distribution, with the exception of liquor license fees which are entirely allocated to licenses in the unincorporated areas of the county.

Table 12 supplies additional information on traceable revenues by county fund. The table shows the total fund requirement; the amount of revenue apportioned to each fund which can be considered traceable by taxpayer location; and the percentage of each fund dollar traceable to city and noncity residents. Of the 41.6 cents of each general fund dollar considered to be traceable, it is estimated that city residents contribute 35.5 cents and noncity residents, 6.1 cents. It is also estimated that city residents contribute 57.7 cents of each dollar of the salary fund; 49 cents of each dollar of the good roads fund; 76.2 cents of each dollar of the forestry fire fund; and 71.4 cents of each dollar of the care and maintenance of indigent and dependent poor fund. Admittedly the shares of each fund paid by city or noncity residents might be somewhat different if all revenues flowing into these funds could be traced. The percentages presented herewith do, however, provide a rough measure of the relative amounts contributed to these county funds by the residents of cities and unincorporated areas.

TABLE 12

ALAMEDA COUNTY

TOTAL REQUIREMENTS AND ESTIMATED TRACEABLE AMOUNTS OF SELECTED FUNDS

1951-52

		Estimated traceable amounts			*Estimated traceable amounts in cents per fund dollar*		
Fund	*Total current fund requirements*	*Total*	*Credited to city residents*	*Credited to noncity residents*	*Total*	*Credited to city residents*	*Credited to noncity residents*
General fund	$7,474,695	$3,108,000	$2,653,000	$455,000	41.6	35.5	6.1
Salary fund	5,738,367	3,837,000	3,312,000	525,000	66.9	57.7	9.2
Good roads fund	4,583,772	2,590,000	2,246,000	344,000	56.5	49.0	7.5
Forestry fire fund	60,390	53,000	46,000	7,000	87.7	76.2	11.5
Care and maintenance of indigent and dependent poor fund	9,563,308	6,828,000	5,894,000	934,000	71.4	61.6	9.8

SOURCE: "Preliminary Budget and Financial Report, Fiscal Year 1951-1952," Alameda County, and data in Table 11.

Services Provided by Alameda County

In the sections which follow, various selected county services are analyzed in detail. The sections are given the titles of the general budget classification of county functions, but within each broad function the analysis is concentrated upon those services which were selected for study in this report. A complete and detailed breakdown of each budget category is presented in Table 1 of Appendix D.

Before discussing these services it should be noted that Alameda County is one of the ten charter counties of the State. A study of this charter, however, revealed no provisions which make significant changes in this county's activities as compared with the activities of general law counties. Figure 7 presents a map of the county showing the five supervisorial districts. District 1 includes two small cities, Livermore and Pleasanton, and the great bulk of the unincorporated area of the county. Districts 2, 3, 4, and 5 are almost completely urban in character including all of the larger cities of the county.

General Government Services. General government services amounted to approximately 12 percent of total budgeted expenditures in 1951-52. Expenditures for the various activities included in this category amounted to $5,586,933. If the various revenues deriving from some of these activities, about $600,000, are deducted, then the net expenditures for general government services amounted to $4,981,783.[3]

Many of the items within this classification are in the nature of overhead services provided to many county departments or they are of benefit to the entire county. Examples of these would be the civil service commission, the purchasing agent, the board of supervisors, and the like. Only two items appear not to be countywide in scope, viz., building inspections and county planning. With respect to building inspection, the county provides no service inside cities. However, the expenditure of $90,000 budgeted for the county building inspection department was more than offset by estimated revenues of $100,000 from inspection fees. Thus this service is really paid for by those who require it, and no questions of equity can be raised with respect to it. The services of the planning commission do, however, warrant further discussion.

The Planning Commission. Net expenditures of the county planning commission amounted to $55,600 in 1951-52. Of this amount, $46,300 was budgeted from the salary fund and $9,300 was budgeted from the general fund. The commission members receive no remuneration so that the amount budgeted was for staff salaries and general operation. The staff included the following as of June 2, 1952:

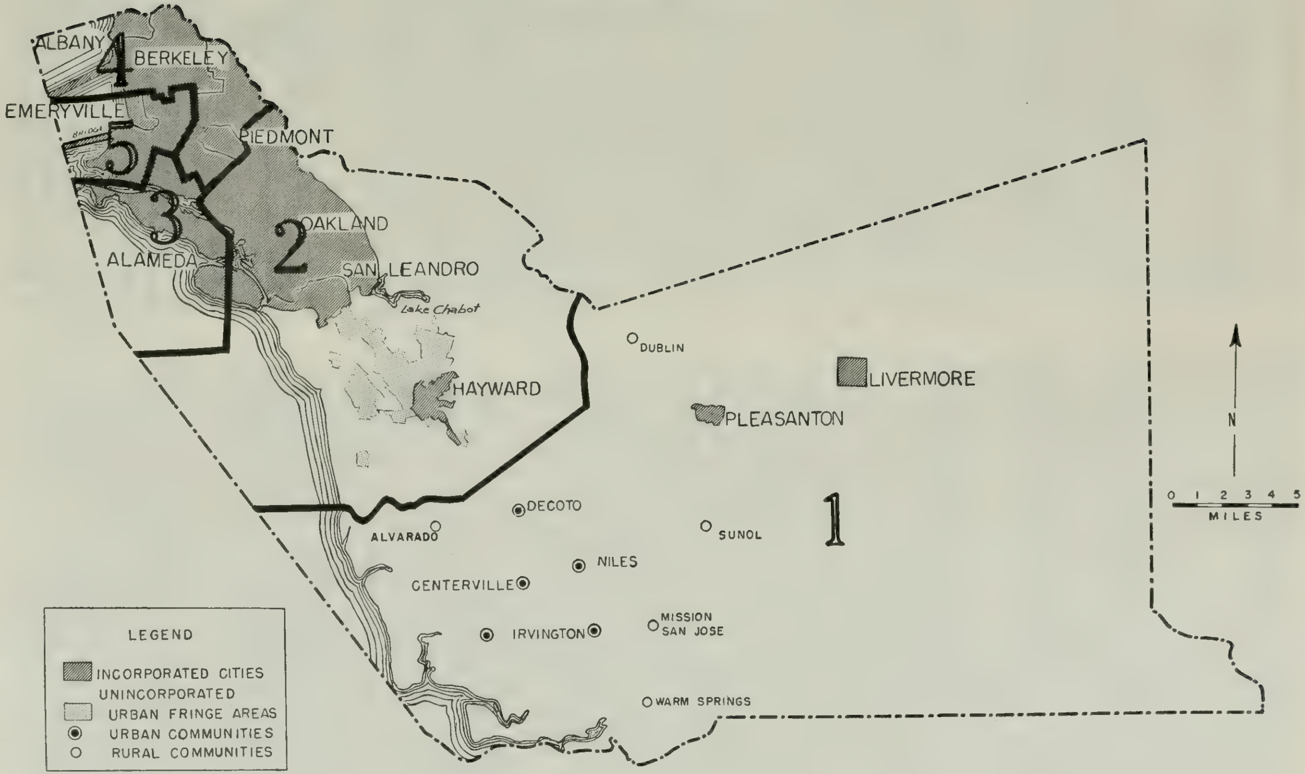
1 Planning engineer
1 Senior planner
2 Associate planners
2 Assistant planners
2 Stenographers
—
8 Total

---

[3] See Appendix D, Table 1 for a detailed listing of county budget items under this heading.

FIGURE 7

ALAMEDA COUNTY
SUPERVISORIAL DISTRICTS



It is contemplated that a zoning administrator will be added to the staff within the next few months to handle the rapidly growing burden of administering the county zoning ordinance.

The functions and purposes of the planning commission are set forth below.

> "The County Planning Commission has a twofold obligation. There is first the obligation to provide plans for the physical development of the whole of the county. According to the terms of the State Conservation and Planning Act, 'the word *county* includes *city* and *county.*' Second, there is the obligation to expedite those portions of the plan which fall within the jurisdiction of county government, the unincorporated area.
>
> "It is the attitude of the county, especially insofar as planning is concerned, that much of the unincorporated area will some day be within the cities, and as such is for the time being held in trust for the cities by the county government."[4]

In accordance with what it feels to be its first obligation, planning for the physical development of the entire county, the department has as its main objective the provision of a "uniformity of planning, subdivision standards and regulations, and land use controls (zoning) throughout the whole planning unit—the county." To implement that objective, the planning commission is in the process of creating a county-wide master plan. It has taken legislative and administrative steps to see that present and future uses of land in the unincorporated areas do not conflict with the land use section of the projected master plan. Subdivision regulations have been in force since 1931 (amended in 1944), and zoning ordinances since 1946 (amended in 1951). The zoning ordinance, however, does not cover the entire county. Castro Valley, San Lorenzo, Decoto, Newark, and Irvington were precisely zoned in 1951, and are the only communities so zoned to date. The planning commission is interested in extending zoning to the northwestern part of Eden Township which would include the urban area between the cities of San Leandro and Hayward; to the remainder of Washington Township, which would include the communities of Centerville, Niles, Mission San Jose, and Alvarado; and to the Amador Valley area to the east. The policy followed thus far has been to include in the precise zoning plan only those areas where local residents have clearly mandated this service. The commission states, "It is the announced intention of the county to plan for and precisely zone the whole of the unincorporated area as quickly as possible so as to provide the maximum guidance for the physical development of the county."[5]

In administering the county zoning and subdivision ordinances, the planning commission accepts recommendations from, and works with, planning bodies from cities within three miles of the areas involved. This policy is in accordance with the State Conservation and Planning Act of 1947 and is intended to give cities a part in shaping the growth of unincorporated fringe areas.

The work program of the planning commission is set forth in the commission's Annual Report for 1950-51 (page 20). The report outlines the following activities:

> "PROGRESS ON THE MASTER PLAN
>
> "Studies now in progress:
>
> "Land Use Plan and precise zoning for the urbanized portion of Eden Township.
>
> "Land Use Plan for the Livermore-Amador Valley area.
>
> "Progressive studies and development of basic data toward revision of the land use portion of the county master plan.
>
> "PROGRESS ON OFFICIAL PLANS
>
> "Precise zoning plan prepared for Castro Valley —adopted by the commission and board of supervisors.
>
> "Revision of the zoning ordinance—adopted by the commission and board of supervisors.
>
> "TENTATIVE PROGRAM FOR THE COMING YEAR
>
> "Complete basic studies for the land use portion of the master plan.
>
> "Complete and adopt the county land use plan.
>
> "Prepare and adopt precise zoning plans for the Livermore-Amador Valley area, Washington Township, and the San Leandro-Hayward area.
>
> "Make basic studies and develop a master plan of streets and highways.
>
> "Make studies for revision and integration of the zoning ordinance with the land use plan."

It was not possible to determine what proportions of time and effort were devoted to general county planning versus local planning, so that no division of the budget item is possible along such lines. If it is assumed, however, that *all* county planning activities are centered upon the problems of localized communities, it may then be estimated that taxpayers inside cities are contributing about $30,000 to the county to assist unincorporated communities with a planning service analogous to that which city residents receive from city planning bodies financed via city levies. This calculation appears below.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$9,300	$3,300
Salary	46,300	26,700
Total	$55,600	$30,000

[a] Calculated according to fund analysis shown in Table 12.

Protection to Persons and Property. Total budgeted expenditures for this general function of county government amounted to $2,144,995, or 4.5 percent of total county expenditures budgeted for 1951-52. It was estimated that revenues associated with various services included in this general category would reach $558,660 leaving net expenditures of $1,586,335. Of the 17 specific services listed under protection, only four are considered as warranting detailed examination in this report.[6]

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[4] Statement prepared for this committee by the Alameda County Planning Commission, May, 1952.

[5] *Ibid.*

These are shown below.

Service	*Budgeted expenditure*
Sheriff	$801,538
Constable	61,922
Humane service	9,600
Forestry fire control	55,390
Total	$928,450

LAW ENFORCEMENT. Both the sheriff and constables are included in this section since the Alameda County Charter provides that constables are civil service officers under the direction of the sheriff, rather than elected officials as in the case of general law counties. Moreover, some portion of the constables' work and time is devoted to criminal cases in addition to their civil duties. It was estimated in the 1951-52 Budget that revenues from the serving of civil writs and processes would amount to $21,000 for the sheriff's department and $21,000 for the constables and that the sheriff would also collect $2,500 for transportation and per diem expenses. Thus the budgeted expenditures of $863,460 for these two services may be reduced by $44,500 in revenues deriving from these services, leaving a net expenditure figure of $818,960.

Before discussing the detailed activities of the sheriff's department it should be noted that the county jail system is administered by the sheriff. Budgeted expenditures for the county jail and the Santa Rita Jail and Prison Farm amounted to $720,111. Fees and intergovernmental charges, however, would reduce this outlay by about $112,000, making the net expenditures approximately $608,000. The personnel assigned to the operation of the jail and the prison farm numbered 99 in March, 1952. The salaries of these employees were separately charged to the two items for jails contained in the budget. County jail operations are considered to be a county-wide service since the jails are used for the incarceration of all violators of state and county laws regardless of the violator's place of residence or place of apprehension.

As of March, 1952, the sheriff's department included the following personnel assigned to the several major functional divisions of the department:

Administrative and clerical	18
Civil and bailiff	42
Civil defense	3
Communications, identification, and transportation	16
Vice	3
Detective	12
Criminal	61
Total	155

In addition to the above personnel, there were 13 constables assigned to six townships as follows:

5 to Oakland and Brooklyn Townships
2 to Alameda Township
2 to Eden Township
1 to Murray Township
1 to Pleasanton Township
2 to Washington Township

In the first three townships listed, the constables performed only civil duties in connection with the justice courts. In Murray Township (Livermore Justice Court), Pleasanton Township (Pleasanton Justice Court), and Washington Township (Centerville and Niles Justice Courts), it is estimated that the constables, serving as ex officio deputy sheriffs under the supervision of the sheriff, spent about half their time upon criminal cases. In this connection, the constables responded only to calls and performed no regular patrol work.

With respect to the personnel and the functions of the sheriff's office proper, the divisions were engaged in varying extent in providing services to the different areas of the county. The vice unit provided control services throughout the entire county. The criminal, detective, identification and communications divisions, however, were engaged in activities performed on a less than county-wide basis. Taking the personnel of these divisions, plus two stenographers assigned to the criminal division and the equivalent in time of one full-time administrator for this same division, the total personnel assigned to less than county-wide operations amounted to 83, or about 54 percent of total department personnel. If expenditures of the department were distributed on the basis of the personnel distribution noted above, then 54 percent of the sheriff's net expenditures, or approximately $445,000 would be chargeable as the amount to be spent on services provided to less than the entire county.

If this estimate is combined with the estimate as to constables' work in other than the civil division, it may be estimated that $451,000 of the county's expenditures for sheriff and constable services in fiscal 1952 was of benefit only to unincorporated areas and that city residents contributed $241,000 toward this amount. This calculation, by fund, is shown below.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$85,940	$30,500
Salary	365,060	210,500
Total	$451,000	$241,000

[a] Calculated according to fund analysis shown in Table 12.

The county does render without charge some law enforcement services to certain cities. The cities and services are shown below with an indication of the extent of the service. No detailed records are kept as to the number and extent of the services provided to these cities so that no estimate can be made as to the county expenditures involved. The sheriff reported that criminal investigation services and identification and records services are available to any city upon request, but that the cities listed below are the only ones which made such requests. Cities handle their own prisoner transportation and extradition problems, and are reimbursed by the State.

City	*Criminal investigations*	*Identification and records*
Hayward	Occasionally	Occasionally
Livermore	All felony cases	All identifications
Pleasanton	All felony cases	All identifications
San Leandro	Occasionally	Occasionally

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[6] See Appendix D, Table 1, for a detailed list of these services.

Two specialized services are provided to cities under contractual or informal arrangements. Cities pay for these services at rates approximating the costs of providing them. San Leandro, Hayward, Livermore, and Pleasanton connect their police cars with the sheriff's radio system, and pay the county for the labor and materials involved in maintenance of the equipment. The county does not charge for use of the transmitter, the radio operator's time, or general administration of the radio communication system. The amounts involved, however, are minor. In 1950-51, for example, cities paid a total of $607.44 for these services.

The county does not charge cities for any prisoners remanded to the county jail system if the city police make the arrest for violation of a state or county law. However, a charge of $1.50 per prisoner per day is made for any city prisoners held in the county jail system on violation of a *city* ordinance. In 1950-51, the total amount of such charges was $59,730.50.

For the purposes of this report it is important to make some appraisal of the quantities and the levels of services which the county provides in incorporated, unincorporated urban, and rural areas. As was pointed out in Chapter II, the sheriff has a responsibility to provide law enforcement service in any area of the county. How much law enforcement service from the sheriff becomes necessary depends upon the size of the area; the population concentration within the area; and the cultural composition of the population in the area. These criteria for determining the amount of law enforcement services required in various types of areas are well set forth by the Federal Bureau of Investigation. The variables include the following:

> ''Population of the city and metropolitan area adjacent thereto.
>
> ''The composition of the population with reference particularly to age, sex, and race.
>
> ''The economic status and activities of the population.
>
> ''Climate.
>
> ''Educational, recreational, and religious facilities.
>
> ''The number of police employees per unit of population.
>
> ''The standards governing appointments to the police force.
>
> ''The policies of the prosecuting officials and the courts.
>
> ''The attitude of the public toward law-enforcement problems.
>
> ''The degree of efficiency of the local law-enforcement agency.''[7]

The bureau further states,

> ''In considering the volume of crimes committed locally, it is generally more important to determine whether the figures for a given community show increases or decreases rather than to ascertain whether they exceed or fall short of those for some other individual community, and it should be remembered that the amount of crime committed in a community is not solely chargeable to the police but is rather a charge against the entire community.''[8]

Admittedly there are dangers in the use of such measures. Their use, however, is no more arbitrary as a measure of law enforcement service (in fact, not as arbitrary) than statements to the effect that sheriff services parallel city police services when there exist no universally accepted criteria by which law enforcement activities can be adjudged to be of a ''city level'' or a ''rural level.'' The data used in the following discussion are presented with a full appreciation of their limited usefulness. It should be remembered, however, that they are no more limited in their usefulness than the vague qualitative approaches which might otherwise be employed.

Some idea of the level of law enforcement service provided by the sheriff in Alameda County can be gained from the summary presented below. These data show the level of service provided as grossly measured by substation personnel and expenditures per capita. Population data are for 1950, and the amount of $445,000 of the expenditures for the criminal division has been prorated on the basis of criminal division personnel per substation.

		Substation		
	Total	*Hayward*	*Centerville*	*Santa Rita*
Township served		Eden	Washington	Pleasanton and Murray
Population of unincorporated area	98,472	73,789	16,895	7,788
Substation personnel on less than county-wide services	83	53	24	6
Estimated expenditure per substation	$445,000	$284,000	$128,700	$32,200
Population per officer	1,186	1,392	704	1,298
Officers per 1,000 population	.84	.72	1.42	.77
Expenditure per capita	$4.52	$3.85	$7.62	$4.13

All of the sheriff's divisions except the criminal and jail divisions operate out of the county court house in Oakland. Three substations are maintained as centers for criminal division operations in outlying areas: one at the Hayward City Hall, serving Eden Township; one at Centerville, serving Washington Township; and one at the Santa Rita Prison Farm, serving the Townships of Murray and Pleasanton. With respect to criminal personnel only, a breakdown furnished by the sheriff's department presents the following assignments among the substations, as of March, 1952.

	Hayward substation	*Centerville substation*	*Santa Rita substation*
Captains	1	1	--
Lieutenants	4	1	--
Detectives	6	2	2
Sergeants	2	3	--
Patrolmen	33	13	3
Female deputy	1	--	--
Stenographer	1	1	--
Total	48	21	5

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[7] *Uniform Crime Reports*, Federal Bureau of Investigation, Vol. XXII, No. 1, 1951, p. 12.

[8] *Ibid*, pp. 12 and 13.

If the communications and administrative personnel are prorated to the three substations above, total personnel figures are raised to 53, 24, and 6, respectively.

The ratios for personnel and expenditures are fairly low in all townships except Washington. The personnel ratios for Hayward and Santa Rita are considerably under the average ratio of 1.70 for all United States cities, as reported by the Federal Bureau of Investigation. They are even further below the figure given for all Pacific Coast cities, which is 1.85 per 1,000 population. Judged by this measurement, the service level in the unincorporated areas served by the Hayward and Santa Rita substations is not even as high as that found in cities of less than 10,000 where the national ratio is 1.21 police department employees per 1,000 population, and the Pacific Coast where the ratio is 1.68 per 1,000 population. The Centerville substation figure of 1.42 per 1,000 population is close to the Federal Bureau of Investigation average of 1.39 for cities in the 25,000 to 50,000 population class. No Pacific Coast group of cities, regardless of population range, reports a ratio under 1.47 per 1,000. For all substations, the ratio of .84 officers per 1,000 population is well below any urban ratio, either national or on the Pacific Coast.[9]

The Centerville substation serving Washington Township had a relatively higher complement of personnel and a higher budget than either of the other two substations. According to the sheriff this was partially accounted for by the fact that greater distances have to be covered in Washington Township, although the population concentrations are much smaller and more numerous. Moreover, considerable numbers of migrant agricultural workers add to the problems of law enforcement in that area. The evidence available implies, however, that a somewhat higher level of law enforcement is provided in Washington Township, and that most of this is performed inside the urban areas of the township.

To insure complete coverage of Washington and Eden Townships, "areas of responsibility" have been defined. There are five zones in Eden Township and two in Washington Township embracing the important unincorporated areas in those townships. The sheriff reported that prowl car service was provided in these five zones according to the following schedule:

	12 m. to 8 a.m.	*8 a.m. to 4 p.m.*	*4 p.m. to 12 m.*
Eden Township:			
Zone 1	1 car, 2 men	1 car, 1 man	1 car, 2 men
2	1 car, 2 men	1 car, 1 man	1 car, 2 men
3	1 car, 2 men[c]	1 car, 1 man[a]	1 car, 2 men
4		1 car, 1 man[b]	1 car, 2 men
5		1 car, 1 man	1 car, 2 men
Washington Township:			
Zone 1	1 car, 2 men	1 car, 1 man	1 car, 2 men
2	1 car, 2 men	1 car, 1 man	1 car, 2 men

[a] Friday through Sunday. On Monday through Thursday, one car is shared with Zone 4.
[b] Friday through Sunday. On Monday through Thursday, one car is shared with Zone 3.
[c] Serves Zones 3, 4, and 5.

One two-man patrol serves Murray and Pleasanton Townships from 6 p.m. to 2 a.m. Protection at other times and for extra service that might be needed is provided by personnel from Santa Rita Prison Farm.

The communities of Castro Valley and San Lorenzo Village have repeatedly requested the sheriff to provide foot patrols including "door-shaking" checks and deputies' inspection of stores and warehouses, but these requests have not been complied with. Patrols check houses when vacationing owners request them.

The sheriff's crime report records for December, 1951, indicated that calls for law enforcement were proportional to local population concentrations. The usual tendency for criminal activity to mount at an increasing rate as population density rose was also apparent. The following tabulation summarizes the crime reports for Eden, Washington, Murray, and Pleasanton Townships for December, 1951.

Area	*Felonies*	*Misdemeanors*
Eden Township:		
Hayward fringe	20	107
Castro Valley	9	107
San Lorenzo Village	12	80
Washington Acres	--	14
Ashland above East 14th	6	57
Ashland below East 14th	1	16
San Leandro	1	23
Mulford Gardens	--	7
Tennyson-Mount Eden, Alta Vista, Valle Vista	3	33
Russell City	--	16
Hayward Highlands and Fairview	3	4
Total Eden Township	55	464
Average per 1,000 population	.75	6.3
Washington Township:		
Niles	--	34
Centerville	--	15
Decoto	6	35
Newark	3	18
Alvarado	1	25
Irvington	1	10
Mission San Jose	--	6
Warm Springs	--	5
Total Washington Township	11	148
Average per 1,000 population	.65	8.8
Murray and Pleasanton Townships:		
All areas	2	46
Average per 1,000 population	.26	5.9
Total	68	658
Average per 1,000 population in unincorporated area	.69	6.7

These crime reports indicate a fairly consistent pattern of criminal activity in proportion to size of population, although as noted earlier various factors such as population density definitely affect the amount of crime occurring in different areas. Caution should be exercised in interpreting these figures since a high felony and misdemeanor rate might result from the fact that greater patrol activity in one area would detect and report a greater number of cases than in another area with a high crime rate, but very little patrol activity.

FIRE PROTECTION. In 1951-52, Alameda County budgeted $551,390 for county fire protection. While the fund involved is entitled "Forestry Fire Control," the service provided includes structural fire fighting as well as crop and grass fires. In Alameda County, the 16 fire protection districts discussed above, and city fire departments provide this type of protection to an area which includes 94.8 percent of the total assessed valuation of the county. Thus the county fire patrol serves only 5.2 percent of the property included in the county tax base. No alarms are answered within cities, but assistance is occasionally given to cities and fire districts under existing mutual aid agreements. All residents of the county pay the county tax rate for forestry fire and hence city residents, and county residents living in fire districts, contribute to the county fire service. The State Division of Forestry does not operate equipment in Alameda County. Furthermore, there are no formal cooperative arrangements existing between the special fire districts. The county does not own or rent fire hydrants.

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[9] The Federal Bureau of Investigation ratios are taken from the *Uniform Crime Reports, op. cit.* The ratios are survey results only, and are not intended to provide recommended standards of police protection.

The Alameda County Fire Patrol consisted of eight full-time and one part-time firemen. It also owned 14 pieces of equipment. The tabulation shows the location of stations, personnel, and equipment, as of June 1952. The county maintains fire stations at Fairview, Sunol, Livermore, Alta Vista, Mt. Eden, and Baumberg. In the Cherryland and Warm Springs Fire Districts, county equipment is loaned to the district without charge. Where volunteers man county equipment, the county pays their compensation insurance.

Station	*Number of fire trucks*	*Personnel*		
		Full-time	*Part-time*	*Other*
Fairview	1	1		
Sunol	1	1		
Livermore	6	6	1	
Alta Vista	1	--	--	Volunteer
Mt. Eden	1	--	--	Volunteer
Baumberg	1	--	--	Volunteer
Pleasanton County Fairground	1	--	--	Fairground Personnel
Cherryland Fire District	1	--	--	District
Warm Springs Fire District	1	--	--	District

According to the county fire warden, the county is equipped to fight brush, crop, forest, and structural fires. The Board of Fire Underwriters of the Pacific has, however, stated that the county is classified as providing only growing crop protection and that its operations are not comparable with urban fire protection services.[10]

During calendar 1951, the activities of the Alameda County Fire Patrol, as reported by the county fire warden, were as follows:

Area	*Response by type of fire*			
	Brush and forest	*Grass or crops*	*Structural*	*Total*
Incorporated cities:				
San Leandro	–	–	2	2
Hayward	–	–	4	4
Fire protection districts: [a]				
Niles	2	–	–	2
Castro Valley	–	–	4	4
Ashland	–	–	3	3
Cherryland	–	–	1	1
Tennyson	–	–	1	1
Areas outside cities and fire protection districts	38	107	65	210
Total	40	107	80	227

[a] Performed at the request of city or district, under mutual aid agreements.

Fighting brush, forest, grass, and crop fires may properly be classified as a county function of general county benefit. Of the 210 fires fought by the county outside cities and fire districts in 1951, 145, or 69 percent, were of these types. If this percentage can be assumed for 1951-52, then budgeted expenditures for these types of fires would amount to about $38,000. The remaining 31 percent of county responses for structural fire fighting outside cities and fire districts would then presumably involve expenditures of about $17,000. It is this amount which should be considered as supporting county services not furnished to those local jurisdictions within Alameda County which provide their own structural fire protection, i.e., cities and fire districts.

If the distribution of traceable amounts of funds presented in Table 12 above is applied to this figure of $17,000, the estimated amount of county expenditure on fire protection which benefits only noncity residents, then the amount which was paid by city residents in support of this service was approximately $12,000. Of the total of $17,000, the amount of $1,300 is estimated as paid by the residents of fire districts. Of the remainder, or $15,700, the fund analysis presented in Table 12 would indicate that $12,000 was contributed by city residents who do not receive this service.

HUMANE SERVICE AND COUNTY POUND. Expenditures amounting to $9,600 were budgeted against the general fund for humane services in fiscal 1952. The county contracts with the Humane Society in Oakland for pound and animal pickup services in unincorporated areas. In 1951, a total of 4,186 animals were picked up in the unincorporated area, but records as to location of pickup were not available. The society reports, however, that most responses were made to calls orginating in the "builtup" areas. The cities of Oakland, San Leandro, Hayward, and Piedmont contract separately with the society for pound service, and other cities provide their own service.

Thus city residents contribute through the general fund tax rate toward this service which is provided exclusively to unincorporated areas. If the general fund breakdown shown in Table 12 above is applied to this service, then city residents can be credited with contributing $3,400 of this total expenditure of $9,600 for a service from which they receive no benefit.

Health and Sanitation. The Alameda County budget for 1951-52 includes $1,000 under this heading, to cover the costs of compiling vital statistics for the entire county, and $360,300 listed under the general budget category of charities and corrections. The latter figure is less than 1 percent of the total county budget. These gross expenditures are reduced by $44,700 in revenues from fees and intergovernmental charges, making the net expenditure for health services $315,600.

The Alameda County Health Department is under the direction of the Institutions Commission and is financed from the fund for the care and maintenance of the indigent sick and dependent poor. This fund accounted for almost $1 in the total county tax rate of $1.88 in 1951-52. Four cities, Alameda, Albany,

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[10] Letter dated August 28, 1952, in reply to a request for analysis of fire protection services provided in selected counties.

Berkeley, and Oakland, maintain their own health departments and are not served by the county.

The central health office of the county is located in San Leandro, and district offices are maintained in the City of Hayward and in the unincorporated community of Centerville. An office is also operated part-time at the Santa Rita Prison Farm. Total personnel number 80, of which 47 are engaged in field health work. The remainder perform laboratory, education, and administrative functions. Services provided include prevention and control of communicable disease; sewer inspection; nursing and consulting service for schools; health education; environmental sanitation; and laboratory services.

The health department serves the entire county, with the exception of the four cities mentioned above. The remaining six cities receive the same health services from the county as are provided elsewhere. The Cities of San Leandro and Hayward entered into contracts with the county whereby they pay $1,500 and $900 per year, respectively, to the county for enforcement of city health ordinaces. Albany pays $1 per examination while Berkeley pays a flat $300 to the county for tuberculosis examinations. All school districts in the unincorporated areas receive county health service; school districts in cities pay the county at a rate of $18 per day for testing pupil hearing. It was estimated that such school district payments would amount to about $20,000 in 1951-52.

The residents of the four cities which maintain their own health departments may be viewed as contributing to the county for a service which they do not receive. These four cities include about 73 percent of the assessed valuations of the county so that it may be considered that they contribute about 73 percent of the ad valorem tax revenues used for the care and maintenance of the indigent sick and dependent poor fund. Since 71 percent of this fund is derived from property taxes, the residents of these four cities pay about 52 percent of the revenues accruing to the fund. Thus approximately $164,500 of county health expenditures is met by the residents of the four cities who receive no benefit from this service.

Highways and Bridges. Budgeted expenditures for this function reached $4,199,772 in 1951-52, or 8.8 percent of total budgeted expenditures. The detail on this expenditure is presented below. The county levies no ad valorem tax for road purposes so that all moneys in the good roads fund derive from federal and state subventions. More than 75 percent of all expenditures for highways and bridges is budgeted for primary and secondary roads. If this figure of approximately $3,200,000 is adjusted upward to include a share of the administrative and acquisition costs involved and if expenditures for the Posey Tube and the three bridges linking Oakland to Alameda are included in expenditures for the primary road system on grounds of their county-wide importance, total budgeted expenditures for fiscal 1952 for these two types of road systems would amount to the following:

	Amount	*Percent of total*
Administration and engineering	$444,332	10.6
Primary roads and bridges	1,598,770	38.1
Secondary roads and bridges	1,623,670	38.7
Acquisition	83,000	2.0
Contributions to cities for road or street purposes	450,000	10.6
Total	$4,199,772	100.0

Primary roads	$2,575,700
Secondary roads	1,624,000
Total	$4,199,700

Alameda County has 277.21 miles of primary and 359.78 miles of secondary roads—a total of 636.99 in the county road system. The primary roads are considered to be of county-wide benefit, while secondary roads are vested with a more local interest.

Since 1931, the county has provided direct financial assistance to cities for street purposes. This may be interpreted as a recognition by the county of a responsibility for the extension of its primary road system in cities. Cities apply to the county for financial assistance on city projects of more than local importance.

TABLE 13

ALAMEDA COUNTY
COUNTY AID TO CITIES FOR ROAD AND STREET PURPOSES
FIVE-YEAR PERIOD ENDING JUNE 30, 1951

City	*1947*	*1948*	*1949*	*1950*	*1951*	*Total, five years ending June 30, 1951*	*Average, five years ending June 30, 1951*
Alameda	$82,223.44	$139,136.26	$263,621.77	$186,127.56	$110,069.18	$781,178.21	$156,235.64
Albany	----	3,000.00	8,547.50	26,452.50	25,000.00	63,000.00	12,600.00
Berkeley	20,623.50	22,000.00	100,000.00	125,000.00	50,000.00	317,623.50	63,524.70
Emeryville	----	----	39,707.00	20,182.11	----	59,889.11	11,977.82
Hayward	3,668.72	----	30,000.00	80,000.00	----	113,668.72	22,733.74
Livermore	----	----	----	7,500.00	16,500.00	24,000.00	4,800.00
Oakland	68,497.24	74,736.25	328,121.78	386,127.55	210,069.17	1,067,551.99	213,510.40
Piedmont	----	----	----	35,000.00	73,791.21	108,791.21	21,758.24
Pleasanton	----	28,402.20	6,000.00	3,000.00	6,000.00	43,402.20	8,680.44
San Leandro	25,000.00	30,000.00	45,000.00	----	45,000.00	145,000.00	29,000.00
Total	$200,012.90	$297,274.71	$820,998.05	$869,389.72	$536,429.56	$2,724,104.94	$544,820.99

SOURCE: Alameda County Surveyor and Road Commissioner.

If the board of supervisors concurs that the project is of wider than city concern, funds are granted to the city on a matching basis. Table 13 below shows the amounts of such grants for the five years from 1947 to 1951. For fiscal 1952, the county budgeted $450,000 to continue this program of aid to cities. In addition to this aid, the county participates with the State and Joint Highway District No. 1 in the construction of Mountain Boulevard. The State pays one-half of the cost of this construction while the City of Oakland and the county each contribute one-quarter. As of June 30, 1951, the county had contributed a total of $675,000.

Of the total mileage of 359.78 of secondary roads, the county surveyor and road commissioner estimated that 31 percent (111.5 miles) lies within subdivisions or communities with a city type of street pattern, and that about 25 percent of these urban secondary streets is used by through traffic. Deducting this 25 percent from the 111.5 miles of urban secondary streets leaves approximately 84 miles of secondary streets (about 23 percent of all secondary mileage) in highly localized use. Although the county does not construct streets in subdivisions, it does to some extent provide such construction in densely populated unincorporated areas outside subdivisions.[11] The county maintains all such urban secondary streets once they have been accepted into the county road system. Any expenditure on the construction or maintenance of such streets would appear to indicate that a higher level of road service is provided to residents of the areas involved, in comparison with the "through" traffic type of secondary road which obviously has county-wide significance.

If the 23 percent shown above is accepted as the proportion of secondary road mileage in highly localized use, then, of the total of $1,624,000 budgeted for secondary roads, about 23 percent or $373,500 is spent for roads which are of benefit to less than the entire county. If the fund analysis of Table 12 which shows that city taxpayers pay an estimated 49 cents of every good roads fund dollar is applied to this figure, then the share of the cost of urban secondary roads of less-than-county-wide benefit borne by city residents amounts to approximately $183,000.

It should be noted that the county does not perform any work for cities under contractual arrangements nor does it lend or rent road equipment. No road or street work is performed on the basis of special assessments in municipal areas, nor are curbs, gutters, or sidewalks installed. Subdividers are required to improve all streets, highways, easements in their subdivisions and roads are accepted into the county system only if they meet the standards set by the county surveyor and meet the approval of the board of supervisors.[12]

Street lights have also been installed and maintained from road funds. As of March, 1952, there were 2,053 lights installed at intersections where traffic hazards exist, or in the middle of blocks to aid in the prevention of crime. The county provides minimum lighting in accordance with county standards in the San Lorenzo Village Lighting District. In fiscal 1952, the county budgeted $15,000 for traffic signals in connection with primary roads and $6,000 for secondary roads. This is done in agreement with the State Division of Highways and the county bears a proportional part of the expense of installing and maintaining signals at the intersection and junction of county roads and state highways.

Recreation and Parks. In 1951-52, Alameda County budgeted $567,096 for Veterans' Memorial Buildings and this outlay for the maintenance, construction, and operation of the 12 buildings involved was the sole recreation service provided. Most of these buildings were located in incorporated cities including Alameda, Albany, Berkeley, Emeryville, Hayward, Livermore, Oakland, Pleasanton, and San Leandro. Of the total budgeted amount, $196,621 was for operation of existing facilities, and the bulk of the remainder, $354,475, was budgeted for new buildings in East Oakland and Piedmont.

Associated revenues of $20,000 and state subventions of $133,500 reduced the amount paid from county property taxes to $414,596. Since the buildings are for the most part located in cities, it seems likely that they benefit city residents to a greater extent than noncity residents.

Education. Slightly more than one-half of one percent of the total 1951-52 budget was allocated for educational purposes, involving about $293,000 from the general and salary funds. Of this amount, $139,639 was budgeted for the county library. While the library was financed from the general and salary funds, on a county-wide basis, library services were not equally distributed throughout the county. The Cities of Albany and Pleasanton were the only incorporated areas which received county library service, and even this was provided on a cooperative basis. The cities provided quarters and personnel for county branch libraries located within their corporate limits while the county supplied books, fixtures, supervision, and administration. The City of Piedmont had a contractual arrangement with Oakland whereby its residents used the Oakland City library. The remaining seven cities provided their own library facilities. However, all city residents were privileged to use any county library without charge.

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[11] Outlays by private subdividers for road improvements in Alameda County have been substantial, as evidenced by the following data:

Year	*Value of private road improvements*
1947-48	$591,070.04
1948-49	1,220,788.29
1949-50	355,452.94
1950-51	972,281.18

See *Annual Report of Financial Transactions Concerning Streets and Roads* for the fiscal years shown, Office of the State Controller.

[12] County Subdivision Ordinances, No. 392, adopted August 29, 1944.

In May of 1952, Alameda County operated a total of 25 branch libraries. These are shown below, by type of service provided.

9 full-time	Two located in the City of Albany, and seven in unincorporated areas.
12 part-time	One located in the City of Pleasanton, and 11 located in unincorporated areas.
3 institutional	One full-time at Fairmont Hospital; one part-time at Highland Hospital; and one part-time at Juvenile Hall in Oakland.
1 bookmobile	Operated out of the San Lorenzo branch and serving the San Lorenzo-Hayward unincorporated area, and the townships of Murray and Pleasanton.

The county also provided certain extra services to various city libraries. These services and estimates of their cost are shown by the following tabulation.

City	*Type of service*	*Estimated annual cost*
Emeryville	Books delivered monthly; books mailed on short loan	$800
Hayward	Books mailed on short loan	160
Livermore	Books delivered bimonthly; books mailed on short loan	680
San Leandro	Books mailed on short loan	500
	Total	$2,140

If the fund analysis presented in Table 12 for the distribution of the general and the salary funds is used to distribute the costs of county library service to city residents, the following tabulation results.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*
General	$47,200	$16,800
Salary	92,400	53,300
Total	$139,600	$70,100

Charities, Hospitals and Corrections. The $28,253,680 budgeted for this general category of county expenditures amounted to approximately 60 percent of the total county budget in fiscal 1952. The bulk of the expenditure was allocated to the categorical aid programs. Over two-thirds of these expenditures were for aid to the aged, blind, and needy children and the remaining third was distributed among detention institutions, camps, and county hospitals. The latter service is of special concern to this report.

Alameda County operated the following hospitals:

Hospital	*Capacity—Number of beds*	*Location*
Highland-Alameda County Hospital	511	Oakland
Fairmont Hospital	292	San Leandro
Arroyo del Valle Sanatorium	290	Livermore
Outpatient clinic	--	Berkeley
Outpatient clinic	--	Alameda

All county facilities were administered by the Alameda County Institutions Commission. Highland Hospital served the acutely sick, the mentally ill, and communicable disease patients. Fairmont Hospital cared for the chronically sick, including advanced tuberculosis cases. Tuberculosis patients were also treated at Arroyo del Valle. Eligibility for county medical care is determined by investigations cooperatively made by the medical social service department and the welfare department. These hospital services required expenditures of $1,747,452 in 1951-52, from the care and maintenance of the indigent sick and dependent poor fund.

County hospital facilities are available only to medical indigents, except that emergency cases, too ill to be moved to a private hospital, are allowed to remain on a charge basis. Free emergency medical care is provided to anyone in the county and is defined as relief of pain; immobilization of fractures; treatment of shock; and control of hemorrhages. Emergency ambulance service is provided throughout the entire unincorporated area by means of a contract with three private ambulance companies. This service responds to calls for both indigent and nonindigent emergency cases. The county also picks up indigents inside cities without charge to the cities.

In an attempt to determine the residence of patients treated in county hospitals, a patient census was undertaken on December 6, 1951, by the county medical director. The results of this census are shown below. It is apparent that the percentage of patients is directly related to the proportion of county population residing inside cities and to the assessed valuations of cities as a proportion of the total of county assessed valuations. Thus this service is one where the need served is directly proportional to county population density and to the tax contributions of county residents in various types of areas.

Type of treatment	*Total number of patients*	*Patients from cities*		*Patients from unincorporated areas* [a]		*Patients from outside the county*	
		Number	*Percent of total*	*Number*	*Percent of total*	*Number*	*Percent of total*
Acute medical	358	334	93.3	15	4.2	9	2.5
Chronic and convalescent	759	655	86.3	62	8.2	42	5.5
Tuberculosis sanatorium	220	196	89.1	23	10.5	1	0.4
Outpatient clinic [b]	2,876	2,544	88.5	322	11.2	10	0.3
Emergency hospital [c]	63	62	98.4	--	--	1	1.6
Total	4,276	3,791		422		63	
Percentage	100.0		88.6		9.9		1.5

[a] Not possible to segregate cases in the unincorporated area as between rural and urban type areas.

[b] Data are for the week ending January 21, 1952.

[c] Data are for the week ending December 9, 1951.

Miscellaneous Budget Items

Alameda County in fiscal 1952 budgeted $3,287,701 for the acquisition of land for county hospital facilities and for the construction of hospital buildings and grounds upon the land so acquired.

Reserves

The county budget for 1951-52 shows the following reserve items. The general reserve constituted an amount set aside from the property tax levies of earlier years to meet the expenditures *beyond* the budgeted requirements of the present fiscal year. The unappropriated reserve was set aside from the general, salary, care and maintenance of the indigent sick and dependent poor, welfare and security, and good roads funds to meet extra amounts of expenditures occasioned by contingencies in the current fiscal year, 1951-52. In fiscal 1951, the expenditures from unappropriated reserves amounted to the following percentages of total county expenditures upon various functions.

Reserve	*Amount*
General	$1,181,913
Unappropriated	1,310,687
Total	$2,492,600

Function	*Expenditures from unappropriated reserve as a percentage of total expenditures*
General government	15.7
Protection to persons and property	4.9
Roads and bridges	3.5
Charities and corrections	74.5
Education	1.3
Recreation	0.1
Total	100.0

County Services Provided to Cities

A number of services are performed by the county for cities on definite, contractual terms involving payment based either on statutory provisions covering such relationships or on an estimated cost basis. These services are shown below.

County service	*Cities served*
Assessment and tax collection	Emeryville, Hayward, Oakland, San Leandro, and Pleasanton
City prisoners housed in county jail	Alameda, Albany, Emeryville, Hayward, and Oakland
Enforcement of city health ordinances	Hayward and San Leandro
Use of election equipment	Alameda, Albany, Berkeley, Hayward, Oakland, Pleasanton, and San Leandro
County radio services	Hayward, Pleasanton, and San Leandro

The county also provides various other services directly to cities without charge, but the total value of such services is relatively small. Albany uses county assessment rolls for personal property and new buildings. It is also connected to the county teletype system, and in addition has a few city health ordinances enforced by the county. Piedmont pays nothing for the use of county election equipment, and also houses a few city prisoners in the county jail each year without charge.

The county also receives moderate amounts from the State to assist in airport development. Since the county is not engaged in any airport activities, it makes these amounts available to the Cities of Hayward and Oakland, on a population basis. In 1950-51, the county subvened the following amounts to these cities:

City	*Amount*
Oakland	$3,442.87
Hayward	88.88
Total	$3,531.75

Summary

Table 14 recapitulates the analyses of county services set forth in the foregoing sections. Of total expenditures of $45,859,408, it was found that $44,497,407, or 97 percent of all expenditures could be considered as the amount which was spent for county services provided throughout the county. Thus only $1,361,900, or 3 percent of the total, was spent in such a way as to provide services which were of benefit to less than the entire county.

Table 15 shows the amount of county expenditures which affect less than the entire county, and the amounts of revenues supporting these expenditures which may be traced to city residents and taxpayers. Of the total expenditures of $1,361,900 affecting less than the entire county, $851,000, may be traced to city and noncity residents. Of this amount, $704,000 may be traced to the residents of cities, $539,000 of which was paid by the residents of all cities, with an additional amount of $164,000 paid by the residents of the Cities of Albany, Alameda, Berkeley, and Oakland.

Table 16 presents a calculation of the property tax rate charges which would have resulted if the city share of the costs of the services set forth in Table 15 had been shifted to noncity residents. The taxpayer of all of the cities of the county would have gained a tax rate reduction of $0.083 per $100 of assessed valuation, and the taxpayers of the four cities of Alameda, Albany, Berkeley, and Oakland would have received an additional tax rate reduction of $0.03 per $100 of assessed valuation, or a total of $0.113. The shifting of this share of the costs of these services to noncity taxpayers would, on the other hand, have occasioned an increase in county property tax rates in the unincorporated areas amounting to $0.681 per $100 of assessed valuation.

In addition to the summary presented in the three tables discussed above the administrative office of the county prepared, in response to a request from the committee, an analysis of county expenditures from taxes levied. This summary is shown in Appendix B, Table 2. In the table, county expenditures from property taxes levied are distributed according to amounts spent in the incorporated and unincorporated areas of the county. While this summary provides another approach to the examination of county services and the areas which benefit from these services, it is subject to certain limitations and differs from the analyses presented in this report in various respects.

TABLE 14

ALAMEDA COUNTY
DISTRIBUTION OF NET EXPENDITURES FOR COUNTY SERVICES, BY BUDGET CATEGORY
1951-52

Budget category	*Net expenditures*[a]	*Expenditures affecting the entire county*[b]	*Percent of total net expenditures*	*Expenditures affecting less than the entire county*[c]	*Percent of total net expenditures*
General government	$4,981,783	$4,926,183	98.9	$55,600	1.1
Protection to persons and property	1,586,335	1,108,735	69.9	477,600	30.1
Health and sanitation	316,603	1,003	0.3	315,600	99.7
Roads and bridges	4,199,772	3,826,272	91.1	373,500	8.9
Recreation	547,096	547,096	100.0	----	--
Education	292,738	153,138	52.3	139,600	47.7
Charities and corrections	27,875,280	27,875,280	100.0	----	--
Miscellaneous and reserves	6,059,801	6,059,801	100.0	----	--
Total	$45,859,408	$44,497,508	97.0	$1,361,900	3.0

NOTES:

[a] Gross budgeted expenditures less associated fees and charges totaling $1,626,910 for all categories.

[b] Expenditures in this column either support county services which are clearly county-wide, such as indigent aid and hospital service, or involve considerations of revenue sources and county policy which, in the view of this report, create no inequities for any county taxpayer groups.

[c] Expenditures in this column are financed to some extent out of county property tax levies and other county-wide revenues, but support services not provided throughout the county.

SOURCE: Analyses of county departmental operations and expenditures. Budget figures are from the "Preliminary Budget and Financial Report, Fiscal Year 1951-1952," Alameda County.

TABLE 15

ALAMEDA COUNTY
COUNTY SERVICES PROVIDED TO LESS THAN THE ENTIRE COUNTY AND FINANCED BY TRACEABLE REVENUES
1951-52

Budget categories and departments	*Net expenditures affecting less than the entire county*	*Estimated total traceable revenues*	*Estimated amount of traceable revenues*			
			Financing county services outside all cities	*Collected from residents of all cities*	*Financing county services outside the cities of Alameda, Albany, Berkeley and Oakland*	*Collected from residents of Alameda, Albany, Berkeley and Oakland*
General government:						
County planning commission	$55,600	$34,900	$34,900	$30,000	----	----
Protection to persons and property:						
Sheriff and constables	451,000	279,800	279,800	241,000	----	----
Fire protection	17,000	14,900	14,900[a]	12,000	----	----
Humane service	9,600	4,000	4,000	3,400	----	----
Total	$477,600	$298,700	$298,700	$256,400	----	----
Health and sanitation	$315,600	$225,000	----	----	$225,000[c]	$164,500
Roads and bridges	373,500	211,000	$211,000	$183,000	----	----
Education:						
County library	139,600	81,400	81,400	70,100	----	----
Total	$1,361,900	$851,000	$626,000	$539,500	$225,000	$164,500
Percentage of total traceable revenues		100.0	73.5		26.5	

NOTES:

[a] Includes $1,300 traceable to residents of fire districts in which county structure fire protection is not received.

[b] Includes about $9,000 paid by rural residents toward the maintenance of urban secondary streets.

[c] County health services are not provided to the Cities of Albany, Alameda, Berkeley, and Oakland.

SOURCE: Analyses of county departmental operations and expenditures. Budget figures are from the "Preliminary Budget and Financial Report, Fiscal Year 1951-1952," Alameda County.

TABLE 16

ALAMEDA COUNTY

HYPOTHETICAL COUNTY PROPERTY TAX RATES WHICH RESULT FROM SHIFTING THE CITY SHARE OF THE TRACEABLE COST OF LESS-THAN-COUNTY-WIDE SERVICES FROM CITY TO NONCITY RESIDENTS

1951-52

Tax area involved	*Assessed valuations 1951-52*	*City share of the traceable cost of less-than-county-wide-services*	*Tax rate required to raise the city share*	*Total increase or decrease in county tax rate*	*Basic county tax rate 1951-52*	*Hypothetical county tax rate*
Rate Tax Reductions:						
All cities	$652,639,555	$539,500	$0.083	$0.083	$1.88	$1.797[a]
Alameda Albany Berkeley Oakland	548,826,935	164,500	0.030	0.113	1.88	1.767[b]
Tax Rate Increases:						
All unincorporated areas	103,433,535	704,000	0.681	0.681	1.88	2.561

NOTES:

[a] The hypothetical rate computed for all cities would apply in all cities except Alameda, Albany, Berkeley, and Oakland. These cities would receive an additional tax rate reduction for county health service not received.

[b] The hypothetical rate computed for these cities reflects the fact that no county health services are provided in these cities.

SOURCE: Assessed Valuations, from the Alameda County Auditor; city share of costs is from Table 15.

These points have already been set forth in a discussion of a similar summary prepared for the committee by Kern County.[13]

CITY SALES TAXES AND PARKING METER FEES

In 1951-52, 8 of the 10 cities in the county levied city retail sales taxes and 6 collected parking meter fees. These cities and the amounts of revenue they collected from these sources in 1951-52 are shown in Table 17 below.

TABLE 17

ALAMEDA COUNTY

CITY REVENUES FROM RETAIL SALES TAXES AND PARKING METER FEES

1951-52

City	*Retail sales taxes*	*Parking meter fees*
Alameda	$130,000	$44,000
Albany	45,000	---
Berkeley	400,000	90,000
Emeryville	---	8,500
Hayward	108,319	44,625
Livermore	7,500	---
Oakland	4,000,000	425,000
Piedmont	---	---
Pleasanton	7,500	---
San Leandro	120,000	35,000
Total	$4,818,319	$647,125

SOURCE: Budgets for the Fiscal Year 1951-52 for the various cities shown.

Lacking a specific count of taxable sales by location of the customer's residence, or a check on parking meter fees paid by noncity residents on visits to the city, it is impossible to state exactly what proportion of these revenues are derived from residents of the unincorporated areas, either rural or urban. A very gross approximation may be obtained by applying the estimate made by the State Board of Equalization that 20 percent of taxable sales at retail within cities are made to residents of unincorporated areas.[14] If this percentage is applied to city sales tax revenues and parking meter receipts, the amounts contributed to city treasuries by noncity residents would approximate the following.

	Total revenues	*Estimated share paid by noncity residents*
Sales taxes	$4,818,319	$963,664
Parking meters	647,125	129,425
Total	$5,465,444	$1,093,089

COUNTY AND SPECIAL DISTRICT TAXES PAID BY CITIES

The Cities of Hayward, Oakland, Pleasanton, and San Leandro paid taxes to Alameda County on certain city-owned facilities located outside their corporate limits. The amounts paid, and the facilities taxed by the county in 1950-51 are shown below.

City	*Taxes paid*	*Facilities taxed*
Hayward	$298.24	Outfall sewer site and water pumping station site.
Oakland	1,319.73	Drainage structures; airport; park and recreation facilities.
Pleasanton	141.98	Sewer farm; pumping station.
San Leandro	2.36	Outfall sewer site.
Total	$1,762.31	

Special district taxes of negligible amounts were also paid by Oakland and San Leandro on the facilities listed, and the City of Berkeley paid property taxes in the amount of $209.92 to Sonoma County on property used for summer camp purposes.

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[13] See Chapter V, pp. 100 and 101.

[14] "What's Next in Local Sales Taxes," State Board of Equalization, Sacramento, California, January, 1951, p. 17.

CHAPTER VII

LOS ANGELES COUNTY

GENERAL CHARACTERISTICS OF LOS ANGELES COUNTY

Physical and Economic Characteristics

The area of Los Angeles County, 4,071 square miles, exceeds the combined areas of Rhode Island, Delaware, and the District of Columbia. While it now ranks thirteenth in size among California's counties, Los Angeles County was at one time much larger. Its boundaries as originally established in 1850 encompassed an area of about 31,000 square miles lying between Santa Barbara and San Diego. Out of this vast tract, the Counties of Orange, San Bernardino, Ventura, and part of Kern were later created.

Figure 1 presents a view of the county and provides some idea of its habitable portions. South of the San Gabriel range lie 799 square miles of flat land; 248 square miles of hills; and 28 square miles of river-bed and marsh land, a total area of 1,075 square miles. This is more than 27 percent of the county's area. To the north, Antelope Valley comprises 943 square miles. The remaining area of 2,053 square miles includes mountainous terrain and the two small islands of Santa Catalina and San Clemente.

In addition to the county as a unit of local government, the area contains 544 other local political subdivisions including 45 cities, 119 school districts, and 380 special districts. The estimated 1952 population of 4,466,000 constituted about 40 percent of the total population of the State. Most of the population resides south of the Santa Susanna and San Gabriel mountains, the east-west range which divides the county into two parts.

The 45 cities cover over 750 square miles and range, according to the population in 1950, from 432 in Vernon to 1,970,358 in Los Angeles. The number of cities falling within various population groups is shown below:

1950 population (in thousands)	*Number of cities*
Under 10	12
10-19.9	11
20-29.9	10
30-99.9	8
Over 100	4

Fourteen cities in the county operate under their own charters, while the rest operate as general law cities of the sixth class. The latest incorporation of a city in Los Angeles County was that of Palos Verdes Estates in 1939. Figure 2 shows the boundaries of the 45 cities in the county.

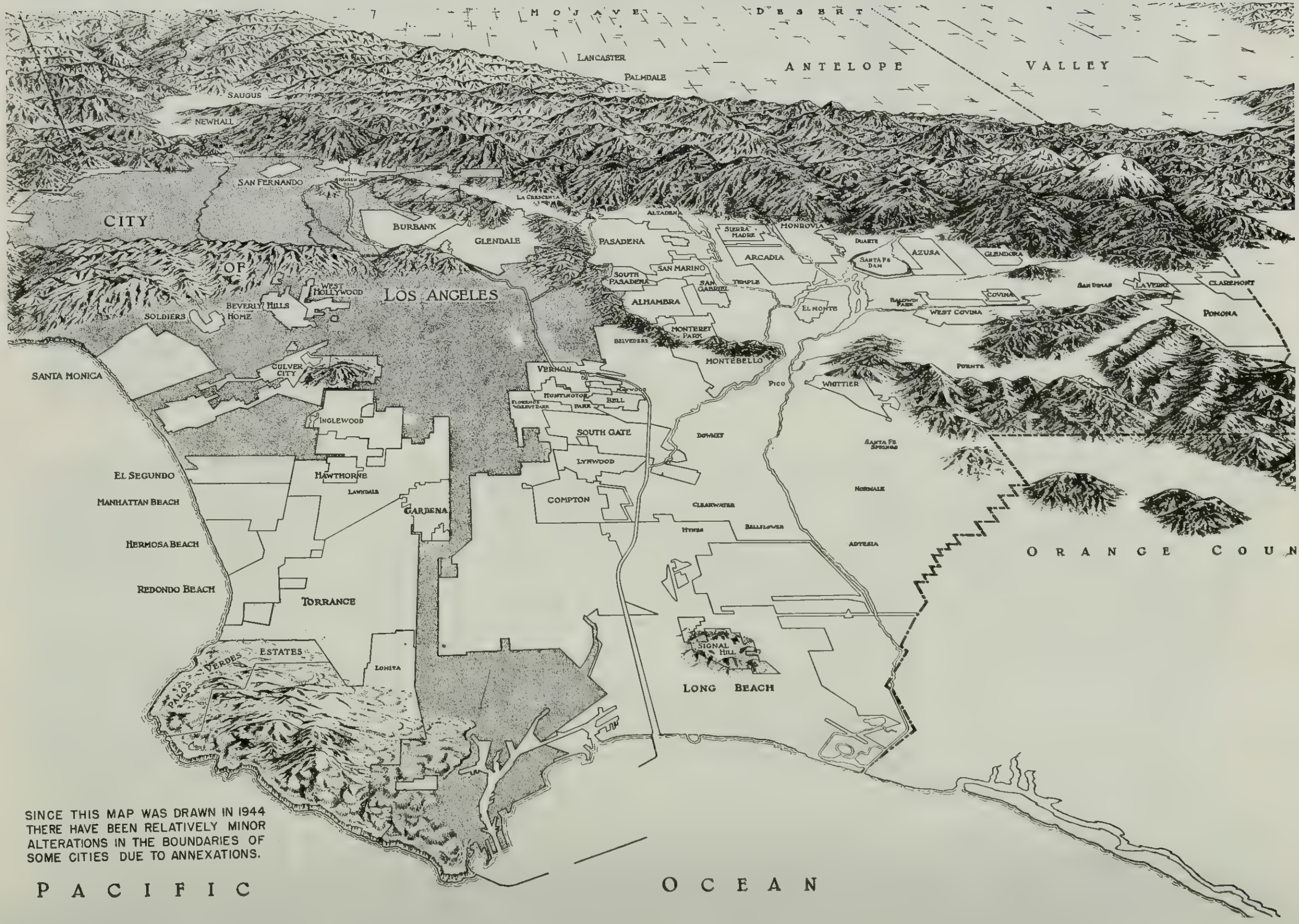
The Los Angeles metropolitan area, consisting of Los Angeles and Orange Counties, ranks third in population, total employment, income, retail sales, wholesale trade, and banking among all the Nation's metropolitan areas, being exceeded only by the New York and Chicago areas. It ranks first in agricultural income; second in number of motor vehicles and volume of construction; and fifth in manufacturing. Los Angeles County alone outranks 44 states in petroleum production; 43 in volume of construction; 43 in personal income, retail sales, and number of automobiles; 40 in population, wholesale trade, and bank deposits; and 39 in manufacuring. It accounts for about 40 percent of the income payments of the State of California, and about the same percentage for many other important economic variables. Agricultural income in the county, however, is only about 9 percent of the state total, while manufacturing runs over 55 percent. At the present time, income payments to individuals exceed 9 billion dollars annually.

For the past 35 years, the population of the county has grown by an average of 100,000 persons annually. This rate was exceeded during the decade from 1940 to 1950 when population rose from 2,785,643 to 4,151,687, an average annual increase of 136,000. Of the total increase of 1,366,000 during this period, about 340,000 derived from the natural increase of births over deaths, while over 1,000,000 resulted from net immigration. Estimates by the California Taxpayers' Association place the population for the county at 4,255,700 in 1951 and 4,466,000 in 1952; others predict a long-run figure of 5,200,000 in 1960 and over 7,000,000 in 1970. Figure 3 summarizes population changes and future estimates for both the City and the County of Los Angeles. Figure 4 presents some population growth comparisons, while Figure 5 shows the population growth of Los Angeles County projected into 1960.

The county's economy is highly diversified. Agriculture produces an income of approximately 150 million dollars annually. Dairy products, oranges, nursery stock, chicken eggs, cut flowers, cattle and calves, and lemons each account for 10 million dollars or more of this income per year. The leading fishing port of the United States is the Los Angeles-Long Beach Harbor. The county's annual petroleum and gas production is valued at over 200 million dollars and is exceeded only by that of Kern County. The construction industry gives rise to about 1 billion dollars per year in incomes and employs over 100,000 persons. Manufacturing creates over 2 billion dollars in value annually and includes more than 50 industries, each of which reports more than 10 million dollars in value added per year. Industries range from light to heavy: aircraft is the largest, but others such as petroleum refining, fish canning, automobile assembly, tires and tubes, furniture, electronic equipment construction and mining industry, and oilfield machinery and tools also rank proportionally higher for Los Angeles County than for other areas in the Nation. Motion pictures, radio and television, and the tourist "industry" also rank very high in importance in the economy of the county. Between the Census of Manufactures of 1939 and that of 1947 the Los Angeles area showed

FIGURE 1

LOS ANGELES COUNTY PERSPECTIVE BASE MAP



SINCE THIS MAP WAS DRAWN IN 1944 THERE HAVE BEEN RELATIVELY MINOR ALTERATIONS IN THE BOUNDARIES OF SOME CITIES DUE TO ANNEXATIONS.

FIGURE 2

LOS ANGELES COUNTY

INCORPORATED AND UNINCORPORATED AREAS

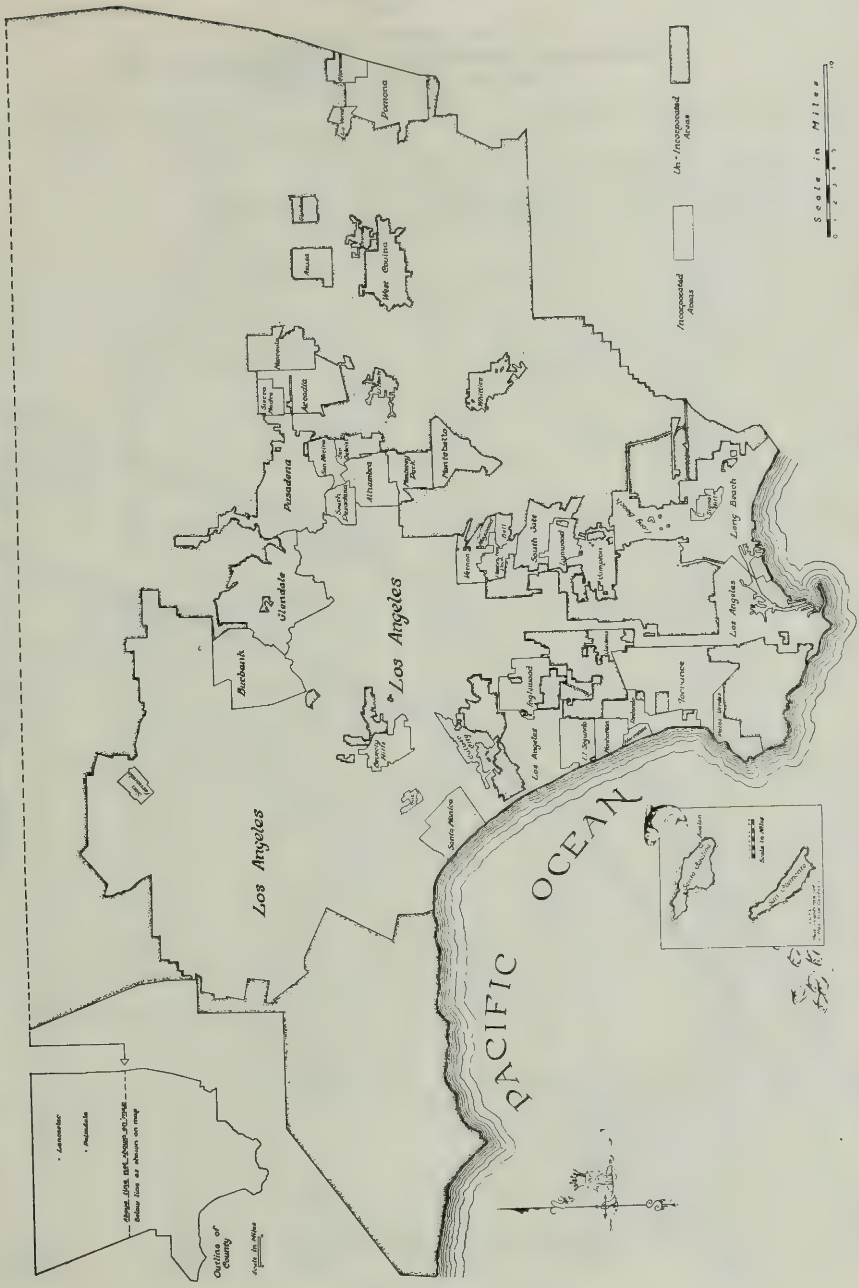


FIGURE 3

LOS ANGELES COUNTY
POPULATION TRENDS IN LOS ANGELES COUNTY AND IN THE CITY OF LOS ANGELES
1900 to 1970

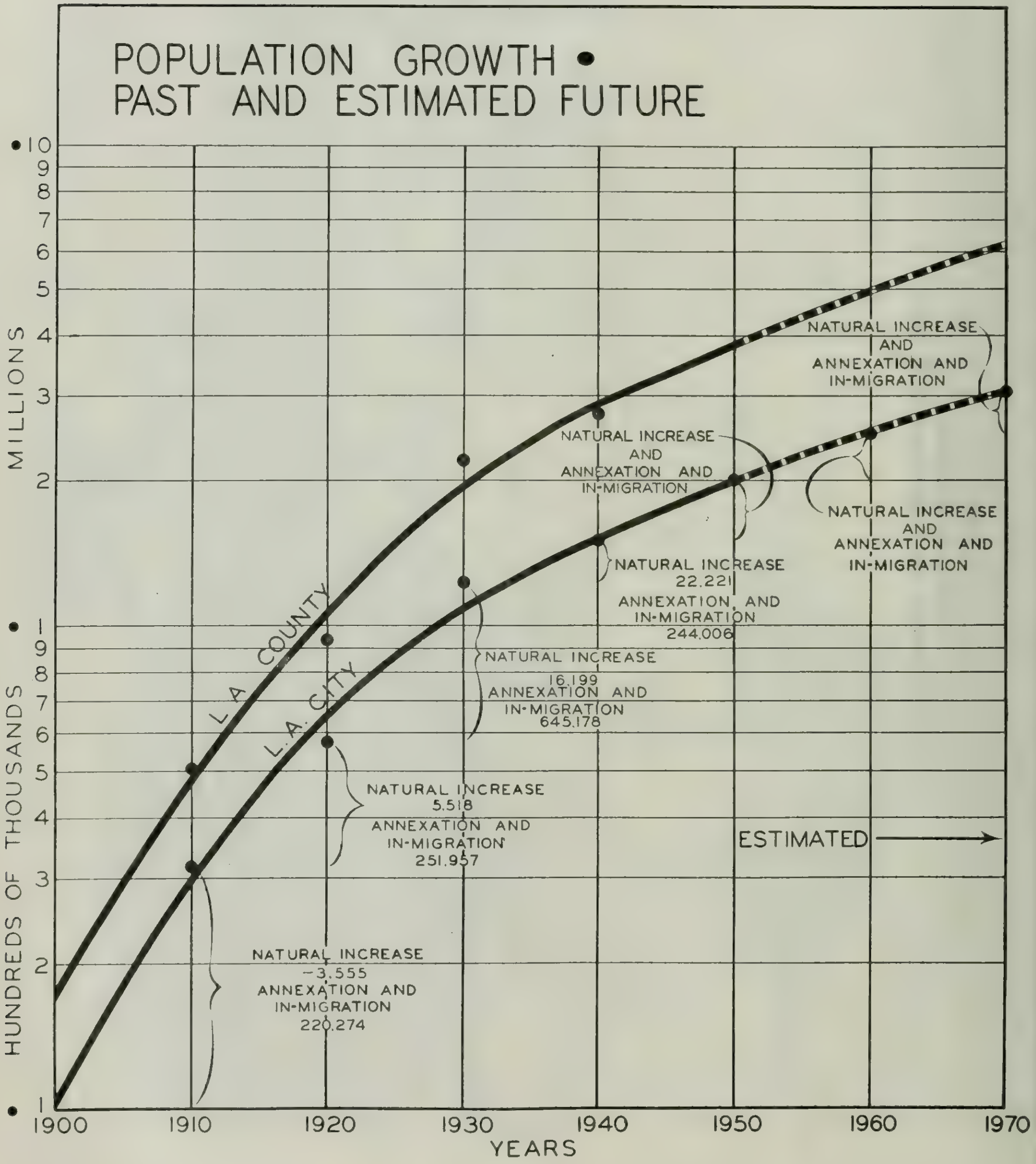


FIGURE 4

LOS ANGELES COUNTY
POPULATION GROWTH COMPARED WITH OTHER SELECTED AREAS
1890 to 1952

	United States	11 Western States	3 Pacific States	California	14 Southern California Counties	10 Southern California Counties	Metropolitan Los Angeles	Los Angeles County	Los Angeles City	LOS ANGELES COUNTY AS PERCENT OF:			
										United States	11 West. States	3 Pacific States	California
1890 June	62,947,714	3,102,269	1,888,334	1,213,398	257,352	227,232	115,043	101,454	50,395	0.16%	3.27%	5.37%	8.36%
1900 June	75,994,575	4,091,349	2,416,692	1,485,053	372,118	337,328	189,994	170,298	102,479	0.22	4.16	7.05	11.47
1910 Apr.	91,972,266	6,825,821	4,192,304	2,377,549	869,094	808,408	538,567	504,131	319,198	0.55	7.39	12.03	21.20
1920 Jan.	105,710,620	8,902,972	5,566,871	3,426,861	1,512,839	1,423,786	997,830	936,455	576,673	0.89	10.53	16.82	27.33
1930 Apr.	122,775,046	11,896,222	8,194,433	5,677,251	3,155,720	3,044,978	2,327,166	2,208,492	1,238,048	1.80	18.56	26.95	38.90
1940 Apr.	131,669,275	13,883,265	9,733,262	6,907,387	3,992,977	3,840,733	2,916,403	2,785,643	1,504,277	2.12	20.06	28.62	40.33
1950 Apr.	150,697,361	19,561,525	14,486,527	10,586,223	6,141,780	5,931,975	4,367,911	4,151,687	1,970,358	2.75	21.22	28.66	39.22
Estimates:													
1951 Jan.				10,822,780	6,291,700	6,083,140	4,483,750	4,255,700	2,000,000				39.32
1952 Jan.				11,236,900	6,612,130	6,400,200	4,712,470	4,466,000	2,050,000				39.74
Forecasts:													
1955 July	161,748,000	22,263,000	16,675,000	12,325,000	7,300,000	7,070,000	5,185,000	4,900,000	2,200,000	3.03	22.01	29.39	39.75
1960 July	169,371,000	24,744,000	18,772,000	14,017,000	8,450,000	8,150,000	5,950,000	5,600,000	2,400,000	3.31	22.63	29.83	39.95
Percent Increases:													
From 1920 to 1930	16.1%	33.6%	47.2%	65.7%	108.6%	113.9%	133.2%	135.8%	114.7%				
From 1930 to 1940	7.2	16.7	18.8	21.7	26.5	26.1	25.3	26.1	21.5				
From 1940 to 1950	14.5	40.9	48.8	53.3	53.8	54.4	49.8	49.0	31.0				
Forecast:													
From 1950 to 1960	12.4	26.5	29.6	32.4	37.6	37.4	36.2	34.9	21.8				

SOURCE: Official census figures for all items through 1950. For 1951 and 1952 estimates are as reported by the California Taxpayers' Association. The state forecasts for 1955 and 1960 are the median projections made by the U. S. Census Bureau in a report issued January 27, 1952. The county and city forecasts for 1955 and 1960 are as estimated by the Research Department of the Los Angeles Chamber of Commerce.

a larger percentage gain in manufacturing than any of the 50 other metropolitan areas of the United States. Whereas the area's share of total United States manufacturing employment was only 1.32 percent in 1929, the figure rose to 1.81 percent by 1939, 2.51 percent by 1947, 2.74 percent by 1950, and 3.30 percent by 1952. In fact, the greatest industrial expansion yet experienced by the Los Angeles area is now under way. During 1951, capital expenditures estimated at 308 million dollars were announced for new plants and expansion, compared with an average of about 90 million dollars per year since 1942, and a peak of 162 million dollars reached in 1943. The principal industrial areas in the county are shown in Figure 6.

Population Distribution

Urban land use is the rule rather than the exception in Los Angeles County, both inside and outside cities. It is common to regard all incorporated areas as urban, and in fact the current Bureau of the Census definition of "urban" does almost that. The bureau states:

> "Under the urban definition established for use in the 1950 Census, the urban population comprises all persons living in
>
> "(a) Places of 2,500 inhabitants or more incorporated as cities, boroughs, towns, and villages;
>
> "(b) The densely settled urban fringe, including both incorporated and unincorporated areas, around cities of 50,000 or more; and
>
> "(c) Unincorporated places of 2,500 inhabitants or more outside any urban fringe.
>
> "The remaining population is classified as rural."[1]

The Los Angeles urban area, as defined by the Bureau of the Census, is shown in Figure 7. Lines have been superimposed on this census map to show the locations of most of the 22 specific unincorporated urban areas discussed in this report.

The concept that all incorporated territory is urban usually agrees with the facts, but in the case of Los Angeles County the enormous area of the City of Los Angeles takes in land uses which are not, as yet, strictly urban. The San Fernando Valley, comprising 212 square miles out of the total of 453 for the entire City of Los Angeles, and bounded by the San Gabriel Mountains, the City of Burbank, the Santa Monica Mountains, and Ventura County, still contains considerable areas on its western and northern borders which can hardly be characterized as urban. There is, even now, extensive agricultural activity in the valley, although subdivisions are vigorously pushing toward the city's outermost limits, and the city's 16 land use zones include three agricultural types of use. About two-thirds of the valley's area is classified under these agricultural zones, representing about 30 percent of all the city's land. Therefore, application of the census definition of urban tends to overstate urban land use.

With respect to urban population *outside cities* but within the "urban fringe," the census definition relies on other criteria in addition to population density, as set forth in the following statement:

> "The urban fringe includes that part of the urbanized area which is outside the central city or cities. The following types of areas are embraced if they are contiguous to any area already included in the urban fringe:
>
> "1. Incorporated places with 2,500 inhabitants or more in 1940 or at a subsequent special census conducted prior to 1950.
>
> "2. Incorporated places with fewer than 2,500 inhabitants containing an area with a concentration of 100 dwelling units or more with a density in this concentration of 500 units or more per square mile. This density represents approximately 2,000 persons per square mile and normally is the minimum found associated with a closely spaced street pattern.
>
> "3. Unincorporated territory with at least 500 dwelling units per square mile.
>
> "4. Territory devoted to commercial, industrial, transportational, recreational and other purposes functionally related to the central city.
>
> "Also included are outlying noncontiguous areas with the required dwelling unit density located within 1½ miles of the main contiguous urbanized part, measured along the shortest connecting highway, and other outlying areas within one-half mile of such noncontiguous areas which meet the minimum residential density rule."[2]

Other unincorporated places are termed urban, according to section (c) of the first definition given, only if they have populations of 2,500 or more.

Taken altogether, the census version of "urban" is probably suitable for ordinary tabulations of urban versus rural, but it is not altogether satisfactory for the purposes of this study. The main concern here is with certain county services performed for residents of unincorporated urban areas. However, many services performed for residents of "census" unincorporated urban areas are also rendered to residents of areas which would not qualify as urban under that definition, but nevertheless involve such concentrations of population or types of land use as to require those county services. For example, there are unincorporated places of less than 2,500 persons, displaying a density of 500 dwelling units per square mile stipulated by the census bureau definition, which are not contiguous to any urban fringe, and therefore are classified by the bureau as rural. Yet these places require fire, police and health protection services in greater amount than truly rural areas. Thus references to urban populations, as used by the census, tend to *understate* the extent of urban service needs in the unincorporated areas.

Even under an older and somewhat more restricted definition of urban, which was replaced by the definitions given above, the Bureau of the Census tabulations for 1950 shown below reveal an increase of almost

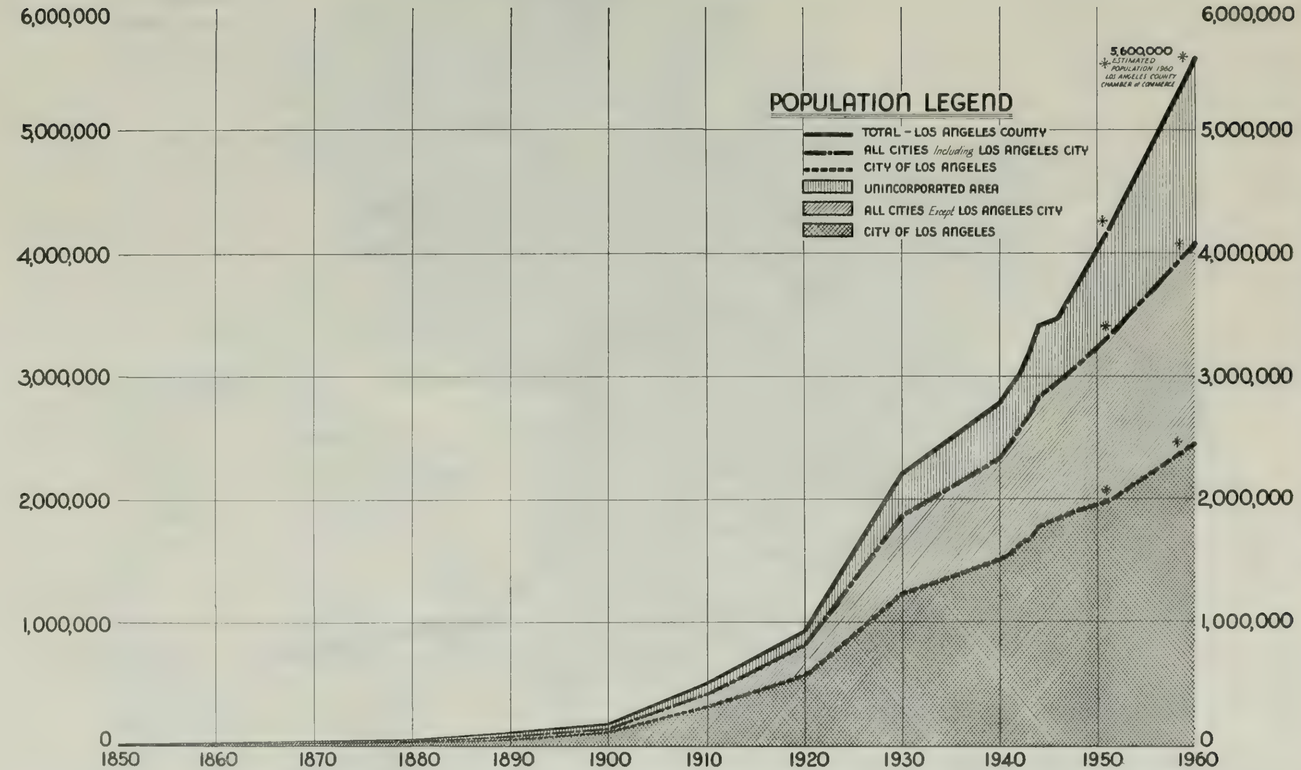
---

[1] U. S. Bureau of the Census, *U. S. Census of Population: 1950*, Vol. 1, "Number of Inhabitants, Chapter 5: California," U. S. Government Printing Office, Washington, D. C., 1951, p. 2.

[2] *Op. cit.*, p. vii.

FIGURE 5

LOS ANGELES COUNTY
POPULATION GROWTH 1850 TO 1960



	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960
	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION	POPULATION
Total-County of Los Angeles	3,530	11,333	15,309	33,381	101,454	170,298	504,131	936,455	2,208,492	2,785,643	4,151,687	*5,600,000
All Cities including L. A.	1,610	4,385	5,728	11,183	63,261	129,734	426,274	817,655	1,887,231	2,340,902	3,252,469	*4,098,109
City of Los Angeles	1,610	4,385	5,728	11,183	50,395	102,479	319,198	576,673	1,238,048	1,504,277	1,954,036	*2,462,085

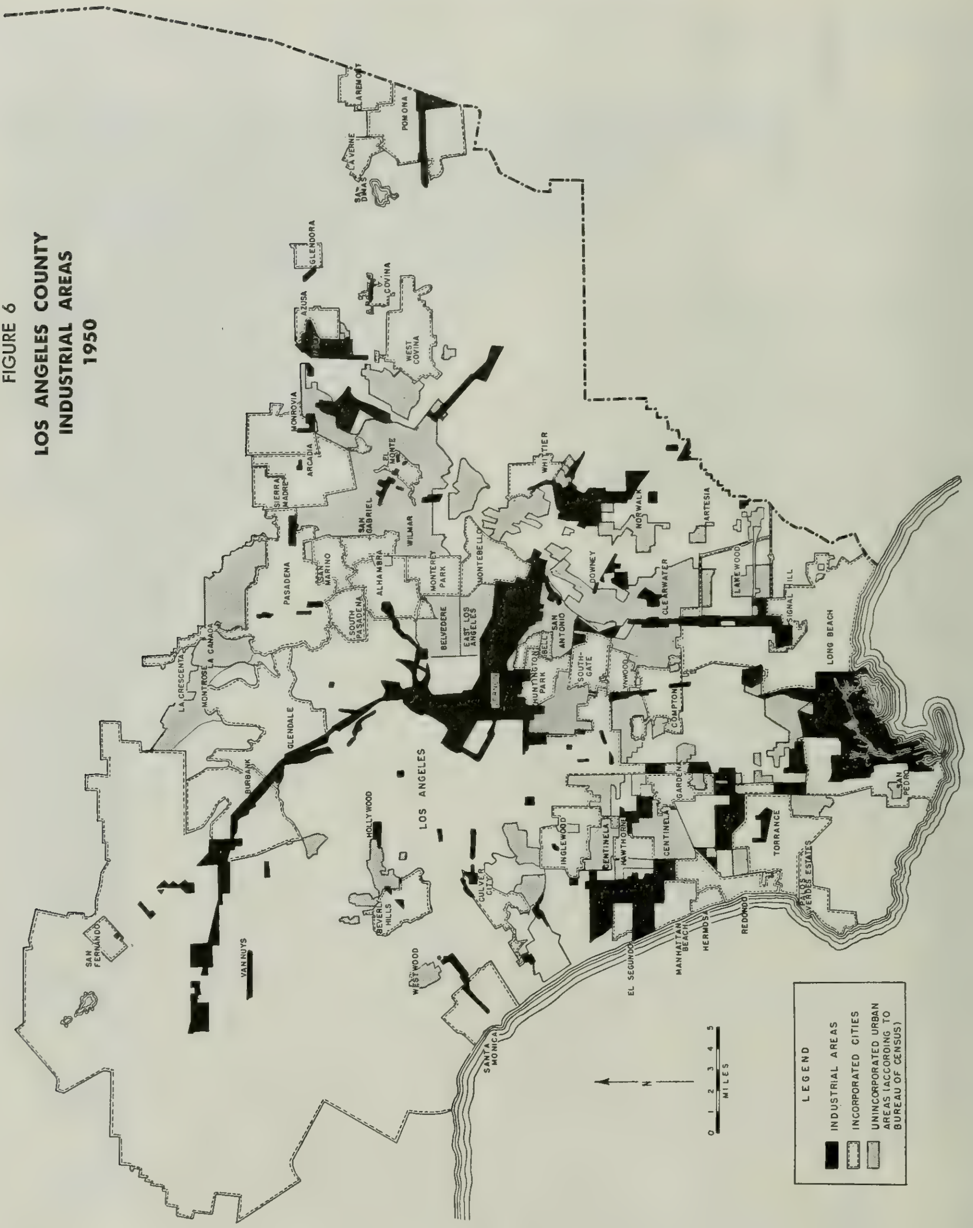


FIGURE 6
LOS ANGELES COUNTY
INDUSTRIAL AREAS
1950

FIGURE 7

LOS ANGELES COUNTY
LOS ANGELES URBANIZED AREA
1950

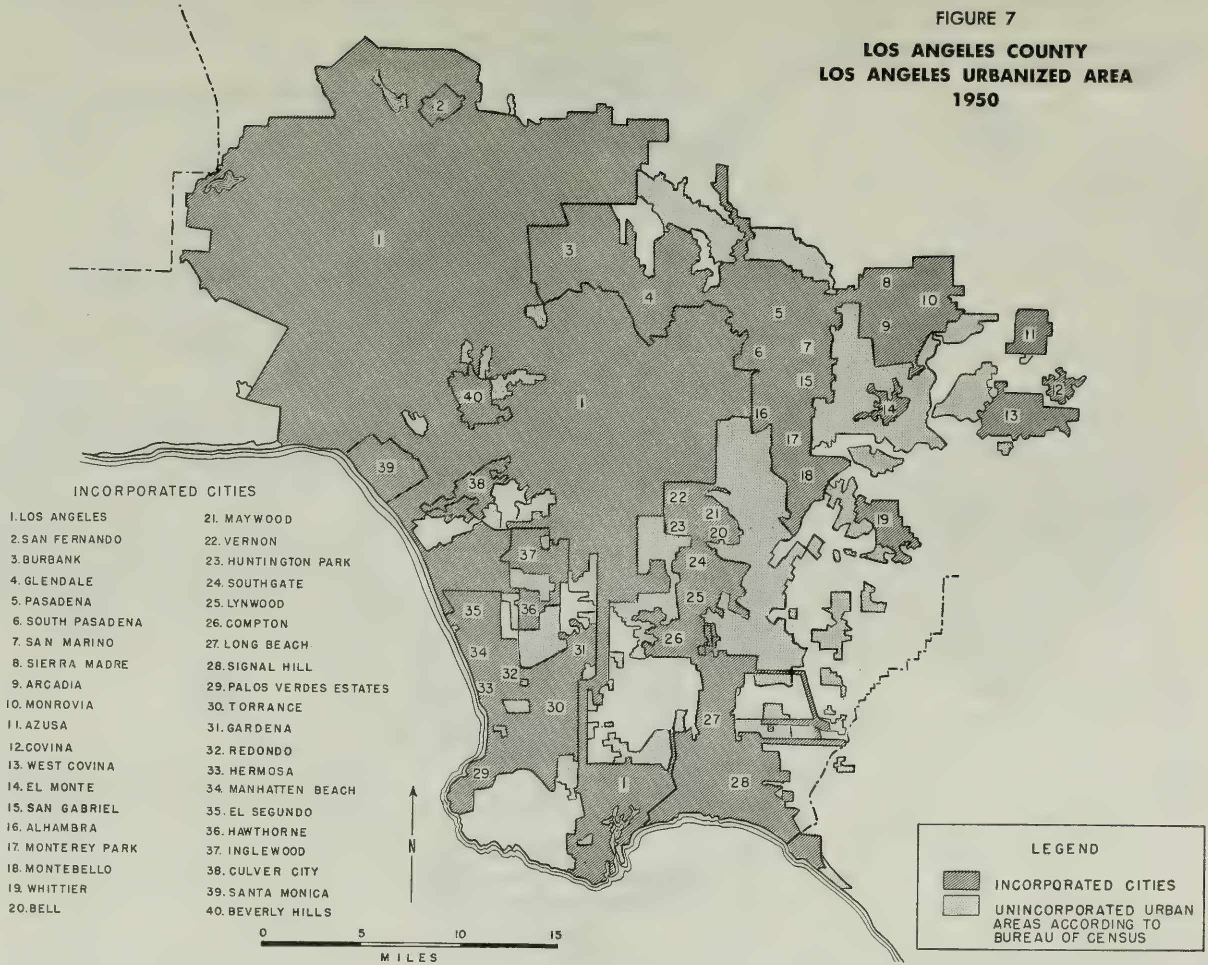


FIGURE 8

LOS ANGELES COUNTY
DISTRIBUTION OF POPULATION
January, 1951

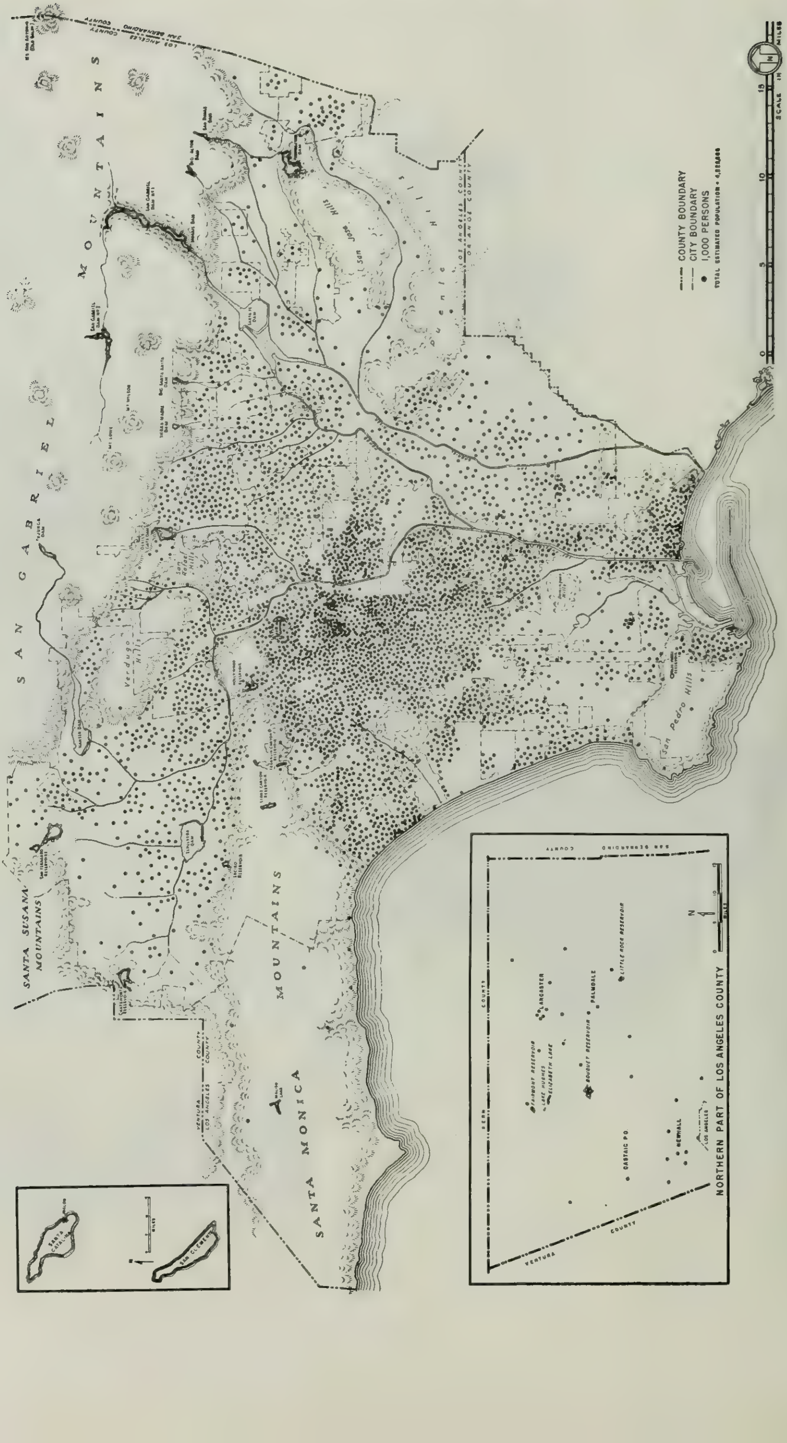


FIGURE 9
LOS ANGELES COUNTY
POPULATION INCREASES
1940 to 1950

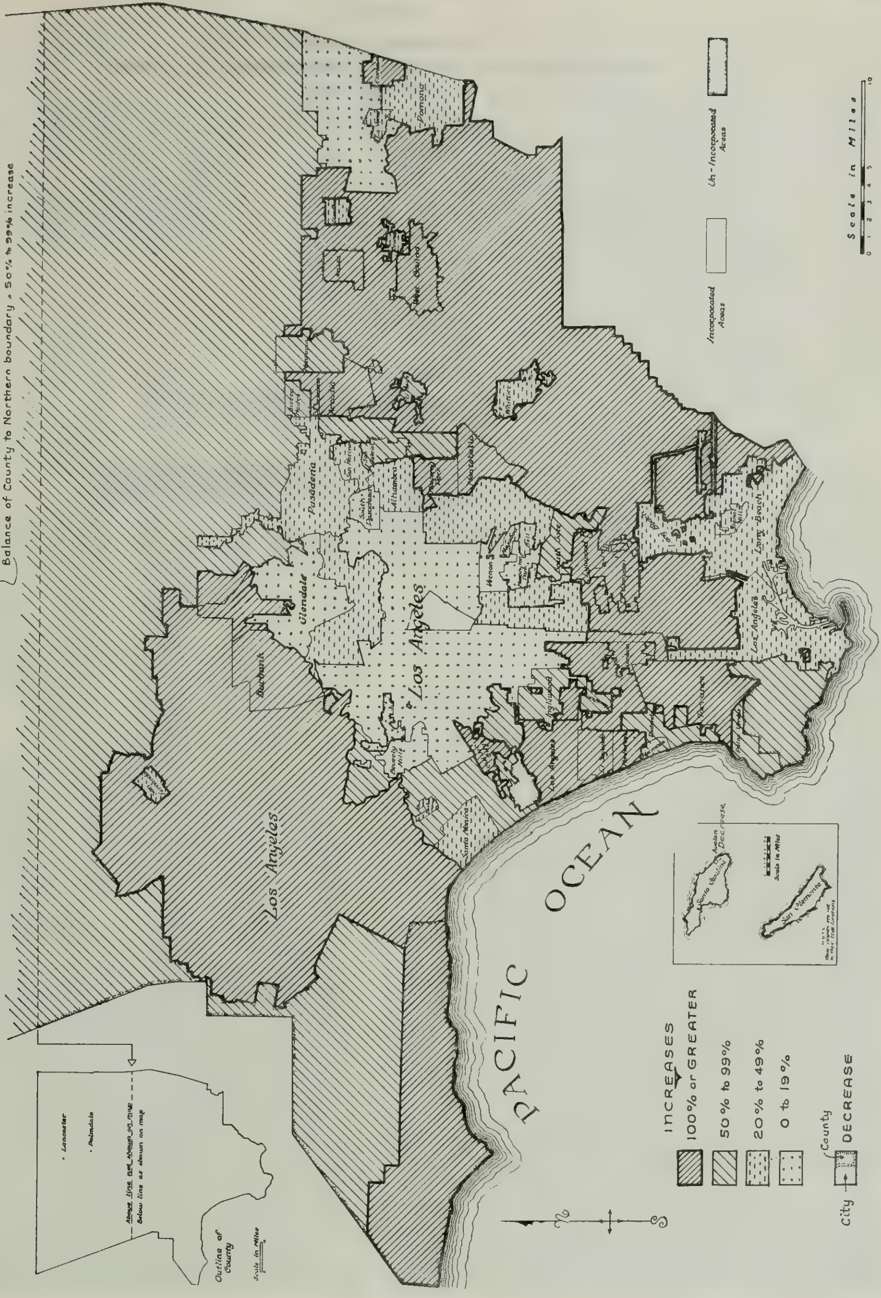
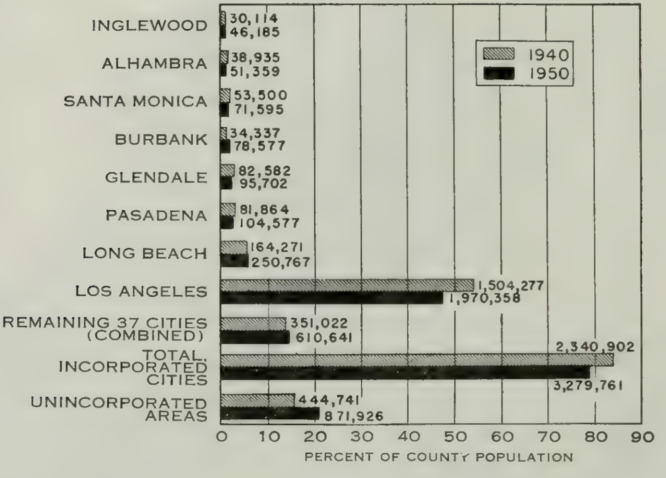


FIGURE 10

LOS ANGELES COUNTY
POPULATION OF CITIES AND UNINCORPORATED AREAS
1940 and 1950



1,000,000 (40 percent) in the urban population of Los Angeles County:

Urban population	*(Old definition)*
1940	2,373,548
1950	3,322,527
Increase	948,979

Under the new urban definition, the bureau's figure for 1950 was 4,047,215, which of course cannot be matched against the figure for 1940 as determined on the old basis. However, the new urban figure for 1950 represented 97.5 percent of the county's total population of 4,151,687. As a percentage of total county population, Los Angeles County's urban portion is exceeded only by that of San Francisco County, the latter being 100 percent because the county boundaries are coterminous with those of the city. The only other county which approaches this urban ratio is Alameda, with 94.7. The average for the State is 80.7 percent, considerably above the urban ratio found in the other counties (excepting Alameda) discussed elsewhere in this report.

According to the census the urban population of Los Angeles County in 1950 was divided between the 3,279,761 (81.0 percent) inside incorporated cities, and the remaining 767,454 (19.0 percent) living in unincorporated urban areas as defined by the census. The 1950 rural population was 104,472, making a total unincorporated population of 871,926. The important aspects of this data may be summarized as follows:

Los Angeles County 1950 population	*As a percentage of 1950 county total*	*As a percentage of 1950 urban total*
In urban areas	97.5	100.0
Inside incorporated cities	79.0	81.0
In unincorporated urban areas	18.5	19.0
In rural areas	2.5	--

Thus, it is apparent that almost one-fifth of either the county's total or urban population resides outside incorporated cities. Figure 8, which shows the population distribution as of January, 1951, also reveals large numbers living outside the boundaries of the cities. This is especially true in the southeastern portion of the county.

Figures 9 and 10 provide further illustrations of the distribution of population in Los Angeles County. Figure 9 shows how this distribution changed between 1940 and 1950. Figure 10 shows these changes by population living in incorporated and unincorporated urban areas. In general it may be said that all areas in the county, except the central metropolitan area, the eastern sector in the vicinity of Pomona and the Long Beach-Los Angeles area to the south, experienced population increases ranging from 50 percent to over 100 percent. The greatest population growth occurred in the northwestern, south and southeastern sectors of the metropolitan area lying south of the San Gabriel Mountains, where the increases exceeded 100 percent for the unincorporated areas and for most of the incorporated cities. It is clear from the map that numerous large unincorporated areas exceeded 30 of the 45 cities in their rate of population growth. The central section of Los Angeles suffered a loss in population as did the Cities of Vernon and Avalon. Only a few unincorporated areas, each less than one square mile in area, experienced population decreases.

Table 1 below presents population data for 1940 and 1950, as reported by the Bureau of the Census.

TABLE 1
LOS ANGELES COUNTY POPULATION OF INCORPORATED AND UNINCORPORATED AREAS 1940 and 1950

Area	*Population 1940*	*Population 1950*	*Percent of total population 1940*	*Percent of total population 1950*	*Percentage increase 1940 to 1950*
Incorporated areas	2,340,902	3,279,761	84.0	79.0	40.1
Los Angeles	1,504,277	1,970,358	54.0	47.4	31.0
Long Beach	164,271	250,767	5.9	6.0	52.7
Pasadena	81,864	104,577	2.9	2.5	27.7
Glendale	82,582	95,702	3.0	2.3	15.9
Burbank	34,337	78,577	1.2	1.9	128.8
Santa Monica	53,500	71,595	1.9	1.7	33.8
Alhambra	38,935	51,359	1.4	1.2	31.9
South Gate	26,945	51,116	1.0	1.2	89.7
Compton	16,198	47,991	0.6	1.2	196.3
Inglewood	30,114	46,185	1.1	1.1	53.4
Pomona	23,539	35,405	0.8	0.8	50.4
Huntington Park	28,648	29,450	1.0	0.7	2.8
Beverly Hills	26,823	29,032	1.0	0.7	8.2
Lynwood	10,982	25,823	0.4	0.6	135.1
Redondo Beach	13,092	25,226	0.5	0.6	92.7
Whittier	16,115	23,820	0.6	0.6	47.8
Arcadia	9,122	23,066	0.3	0.6	152.9
Torrance	9,950	22,241	0.4	0.5	123.5
Montebello	8,016	21,735	0.3	0.5	171.1
Monterey Park	8,531	20,395	0.3	0.5	139.1
San Gabriel	11,867	20,343	0.4	0.5	71.4
Monrovia	12,807	20,186	0.4	0.5	57.6
Culver City	8,976	19,720	0.3	0.5	119.7
Manhattan Beach	6,398	17,330	0.2	0.4	170.9
South Pasadena	14,356	16,935	0.5	0.4	18.0
Hawthorne	8,263	16,316	0.3	0.4	97.5
Bell	11,264	15,430	0.4	0.4	37.0
Gardena	5,909	14,405	0.2	0.3	143.8
Maywood	10,731	13,292	0.4	0.3	23.9
San Fernando	9,094	12,992	0.3	0.3	42.9
Hermosa Beach	7,197	11,826	0.2	0.3	64.3
San Marino	8,175	11,230	0.3	0.3	37.4
Azusa	5,209	11,042	0.2	0.3	112.0
El Monte	4,746	8,101	0.2	0.2	70.7
El Segundo	3,738	8,011	0.1	0.2	114.3
Sierra Madre	4,581	7,273	0.2	0.2	58.8
Claremont	3,057	6,327	0.1	0.2	107.0
West Covina	1,072	4,499	[a]	0.1	319.7
La Verne	3,092	4,198	0.1	0.1	35.8
Signal Hill	3,184	4,040	0.1	0.1	26.9
Glendora	2,822	3,988	0.1	0.1	41.3
Covina	3,049	3,956	0.1	0.1	29.7
Palos Verdes Estates	987	1,963	[a]	[a]	98.9
Avalon	1,637	1,506	0.1	[a]	—8.0
Vernon	850	432	[a]	[a]	—49.2
Unincorporated areas	444,741	871,926	16.0	21.0	96.1
Total	2,785,643	4,151,687	100.0	100.0	49.0

NOTE: [a] Less than one-twentieth of 1 percent.

SOURCE: U. S. Bureau of the Census, "Population of California: April 1, 1950" (1950 Census of Population, Advance Reports, Series PC-8, No. 4), Washington, D. C., October 14, 1951.

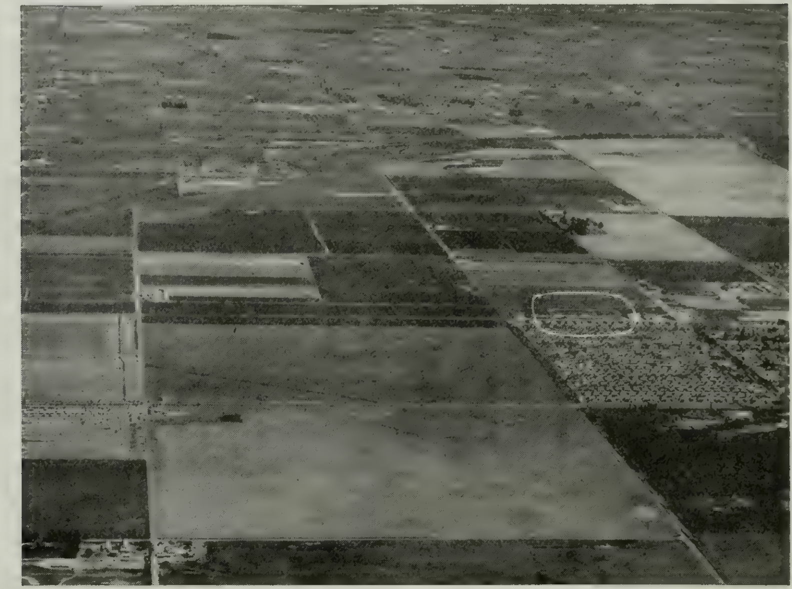
The data in Table 1 shows that while the county as a whole experienced a population increase of 49.0 percent during the decade from 1940 to 1950, the increase in the unincorporated areas averaged 96.1 percent. While incorporated cities showed an average rise of only 40.1 percent, some cities reported tremendous rates of growth. This is especially true of those with a population under 20,000 in 1950. The population of West Covina quadrupled; that of Compton increased almost threefold; and the population of 12 cities more than doubled. Avalon and Vernon were the only cities showing a population loss, while Huntington Park, Beverly Hills and Glendale were the three slowest-growing cities. Of the three largest cities, Los Angeles, Long Beach and Pasadena, only Long Beach grew at a rate exceeding the city average, or 52.7 percent over the decade. If complete data were obtainable for specific unincorporated areas, it is fairly certain that they would also show very rapid growth over the decade. Reliable estimates are available for at least one such area, Lakewood, situated just north of the main portion of Long Beach. (See Figure 11.) This unincorporated territory of about 20 square miles grew from less than 5,000 to over 30,000 persons during the decade, and is currently estimated to have a population of 66,500 (mid-1952). This growth exceeds all figures for cities percentagewise, and even exceeds most cities in absolute terms. Only five cities, Burbank, Compton, Long Beach, Los Angeles and Pasadena, showed absolute increases of 25,000 or over between 1940 and 1950.

Ordinarily it is helpful to study population changes by townships, for these data show clearly those portions of a county which have had relatively large gains or losses. For Los Angeles County, however, township data have been omitted because the formation of four new townships and the boundary changes in 26 out of the 30 townships make comparisons between 1940 and 1950 populations deceptive. As an alternative, certain data is presented with respect to subdivisions recorded during the period 1945-50. These data provide some indication as to the specific areas of the county where unusually rapid population growth has recently taken place.

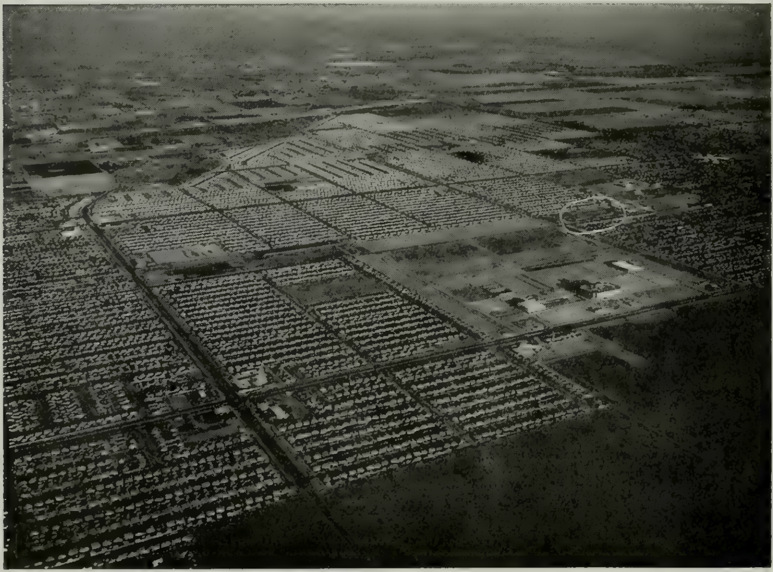
The table reproduced with the map in Figure 12 shows that, of the 2,758 subdivisions recorded in the Los Angeles area between January, 1945, and December, 1950, 1,622 (59 percent) were outside the boundaries of the other incorporated cities, although the exact number is not available. Again, the population expansion in the southeast region of the county is emphasized, with the enormous Lakewood development and the Downey-Norwalk-Bellflower growth clearly evident. The amount of new building inside the City of Los Angeles has been tremendous, and still continues, with the San Fernando Valley area accounting for the largest share. The community of Westchester, lying inside Los Angeles at a point just west of the City of Inglewood, also shows impressive growth —11,000 homes and 40,000 people in the space of just a few years. This great subdivision activity inside Los Angeles contrasts sharply with the moderate or little

FIGURE 11

LOS ANGELES COUNTY
THE LAKEWOOD AREA AS OF MARCH, 1950, AND SEPTEMBER, 1951



March, 1950



September, 1951

activity which occurred in most other cities. This, however, is easily explained. The City of Los Angeles had, and still has, large areas available for residential and other development, but most of the other cities are built up almost solidly to their jurisdictional limits. Nevertheless, it is interesting to note the similarity between new development inside Los Angeles City and in the unincorporated southeast section of the county.

A close study of the population distribution in the unincorporated areas of Los Angeles County reveals at least 22 unincorporated urban areas, consisting of 10 fringe areas and 12 urban communities. There are also 15 county islands having urban characteristics. Figure 13 shows the location of these areas.

With respect to this study, the urban fringes are by far the more significant, accounting for about three-fourths of the total unincorporated urban population.

Fringe Areas

In this report a *fringe area* is an unincorporated, densely settled area contiguous to the corporate limits of a city. The distinguishing feature of this type of urban area is that the residents usually identify themselves to varying degrees with the adjacent city community and usually they are functionally dependent upon the central city for the satisfaction of most of their social and economic needs. Obviously such fringe areas can only come into being around cities which have unincorporated territory adjacent to their incorporated boundaries. This requirement automatically eliminates five cities in Los Angeles County, which are in the position of bordering on other incorporated cities. These five cities are:

San Fernando: entirely within Los Angeles City;

Santa Monica: bounded by Los Angeles City and the Pacific Ocean;

South Pasadena: bounded by the cities of Los Angeles, Pasadena, San Marino and Alhambra;

Hermosa Beach: bounded by the cities of Manhattan Beach and Redondo Beach and by the Pacific Ocean;

Signal Hill: entirely within Los Angeles City.

The remaining 40 cities with the exception of Avalon (situated on Santa Catalina Island) have fringe area development. For some cities such as Azusa, Glendora, West Covina and Covina, lying in the eastern section of the county fringe areas exist on a smaller scale than those for the cities in the Los Angeles area. Nevertheless it should be noted that, although these fringe areas are relatively small when considered in terms of Los Angeles County, they would be extremely significant in counties of smaller size. One other "smaller" urban fringe, the area lying west of San Pedro, in the Palos Verdes hills, should also be mentioned. Extensive, high-class residential development has occurred there between 1940 and 1950 and the population in 1950 is estimated to be 9,300. Attention is thus focused on the ten large fringe areas adjacent to one or more of 27 cities with a population in 1950 totaling 555,683. It is estimated that the aggregate population for these areas in July, 1952, amounted to 652,600.[3] A list of these are as follows:

1. *The Altadena Fringe Area.* This area is bounded on the north and east by the San Gabriel Mountains, on the south by the City of Pasadena and on the west by the Arroyo Seco. Population in 1950, 35,168. Estimated July, 1952, population, 37,900.

2. *The La Crescenta-Montrose Fringe Area.* This area is bounded on the north by the San Gabriel Mountains, on the east by the Arroyo Seco, on the south by the cities of Pasadena and Glendale, and on the west by the City of Los Angeles. Population in 1950, 18,895. Estimated July, 1952, population, 20,000.

3. *The South Los Angeles Fringe Area (Willowbrook-Dominguez).* This is not a single area, but consists of several fringes which are adjacent to the city limits of Los Angeles, Compton and Long Beach. The combined population of these areas in 1950 was 53,011, and it is estimated to be 60,000 as of July, 1952.

4. *The Lennox-Lawndale Fringe Area.* Like the South Los Angeles area, the Lennox-Lawndale fringe consists of many built-up portions lying along the boundaries of the surrounding cities of Inglewood, Los Angeles, Gardena, Torrance, Redondo Beach, Manhattan Beach and El Segundo. Their combined population in 1950 was 84,907 and reached an estimated population of 104,300 in July, 1952.

5. *The Baldwin Hills Fringe Area.* This area is adjacent to the City of Los Angeles along a sector just north of the city of Inglewood. Population in 1950 was 10,655. Estimated population in July, 1952, was 11,600.

6. *The West Hollywood Fringe Area.* This resembles Lennox-Lawndale in that it is entirely surrounded by incorporated cities. It differs in that its entire area is solidly urban. Areas similar to this but much smaller in extent and population are classified as county "islands" below. The West Hollywood fringe area is surrounded by Los Angeles on three sides and Beverly Hills on the west. It had a population in 1950 of 21,734. In July, 1952, the population was estimated at 22,000.

7. *The Temple City-Rosemead Fringe Area.* The limits of this area are Pasadena on the north, the San Gabriel River on the east, Mesa and Arroyo Drives on the south, and the cities of San Marino, San Gabriel, Alhambra and Monterey Park on the west. Actually, more than one identifiable area is involved within these limits. Starting at the northern end and proceeding in a general southwesterly direction, the communities of Temple City, Rosemead, Wilmar and Garvey are distinguishable. These had populations of 25,381, 62,718, 11,240 and 11,921 respectively in in 1950, or a minimum total population of 111,260.

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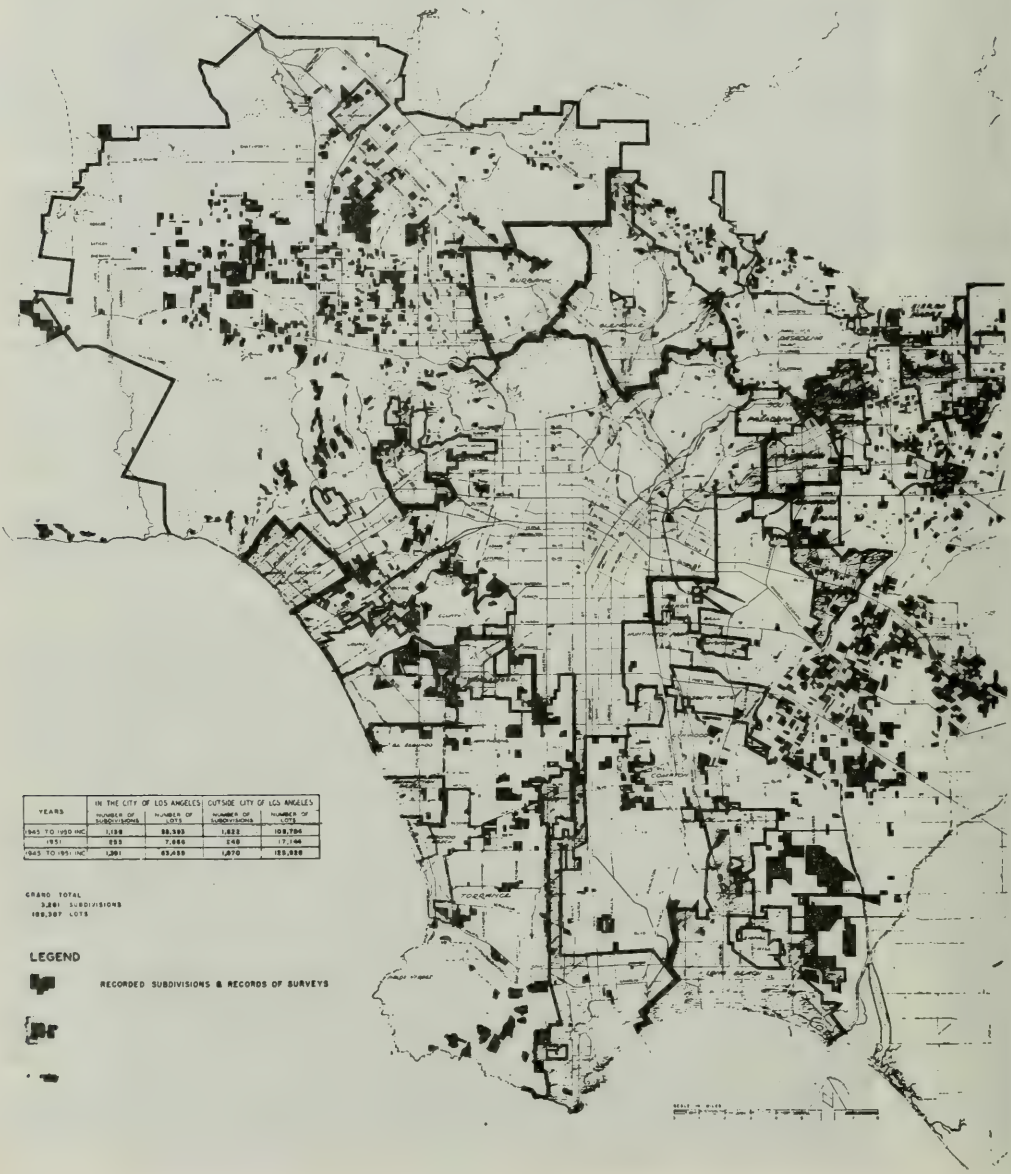
[3] Population figures for 1950 and estimated population figures for July, 1952, have been furnished for these areas and most of the others by the Regional Planning Commission of Los Angeles County. Some figures have been modified so as to apply to areas differing slightly from those used by the Planning Commission, the modifications being based on population data compiled by the Los Angeles Chamber of Commerce.

FIGURE 12

LOS ANGELES COUNTY
NEW SUBDIVISIONS IN THE LOS ANGELES AREA
1945 to 1950



YEARS	IN THE CITY OF LOS ANGELES		OUTSIDE CITY OF LOS ANGELES	
	NUMBER OF SUBDIVISIONS	NUMBER OF LOTS	NUMBER OF SUBDIVISIONS	NUMBER OF LOTS
1945 TO 1950 INC.	1,138	56,393	1,622	108,784
1951	255	7,066	248	17,144
1945 TO 1951 INC.	1,301	63,459	1,870	125,928

GRAND TOTAL
3,201 SUBDIVISIONS
189,307 LOTS

LEGEND

▇ RECORDED SUBDIVISIONS & RECORDS OF SURVEYS

The Regional Planning Commission estimates an increase of 12.4 percent in the population of Temple City and Rosemead between April, 1950, and July, 1952. If this is applied to the more inclusive figure of 111,260, an estimate of 138,000 is obtained for the present population.

8. *East Los Angeles Fringe Area.* For this study, the area included here is somewhat more extensive than that which is usually associated with East Los Angeles. It includes the identifiable centers of City Terrace, Belvedere, Bella Vista, Belvedere Gardens, Eastmont, Bandini and Bell Gardens. The area boundaries are Los Angeles City on the north, Monterey Park and Montebello on the east, Florence Avenue on the south and the cities of Los Angeles, Vernon, Maywood and Bell on the west. The total population of this area was placed at 135,983 in 1950, and in July, 1952, it was estimated at 139,200. This area includes the central manufacturing district, which has practically no residential population but has a daytime working population estimated at upwards of 60,000.

9. *The Miramonte-Florence-Graham Fringe Area.* This area includes the Florence, Firestone and Walnut Park districts. It is bounded on the north, west and south by the City of Los Angeles and on the east by the Cities of Huntington Park and South Gate. Considerable industrial activity is carried on in this area, and the 1950 population was estimated at 52,996. For July, 1952, the population is estimated at 53,100.

10. *The Lakewood Fringe Area.* This unincorporated "city" is the scene of unprecedented residential growth, especially during the period from 1949 to 1951. As mentioned earlier, its population grew from less than 5,000 in 1945 to over 30,000 in 1950, with a final figure projected at around 90,000 when the subdivision development reaches completion sometime in 1953. Lakewood is bounded on the north by Ashworth Street (which also marks the narrow incorporated "shoestring" belonging to Long Beach); on the east by the San Gabriel River; on the south by Spring Street and on the west by Cherry Avenue. The population of Lakewood in 1950 was 31,074, and it is currently estimated to be 66,500.

Unincorporated Urban Communities Not Adjacent to Cities

Most of the urban centers which lie at considerable distance from incorporated cities are found in the southeast portion of the county, in the general area bounded on the north and northeast by Anaheim-Telegraph Boulevard; on the east by a line running southwest from Anaheim-Telegraph Boulevard and passing about one mile east of Norwalk; on the south by Artesia Boulevard; and on the west by the various incorporated cities. To this southeast area should be added the strip extending northward along Rosemead Avenue to Beverly Boulevard.

There are seven urban unincorporated areas of considerable size within this general area. The population of these areas in 1950 was as follows:

Bellflower	18,572
Paramount [a]	18,592
Downey	29,516
Los Nietos	16,139
Norwalk	27,619
Pico-Rivera	18,225
Santa Fe Springs	13,072
Total	141,735

[a] Also known as Clearwater-Hynes.

Although the communities of Downey and Pico-Rivera appear to be quite close to the Cities of Bell Gardens and Montebello, respectively, there is a geographic barrier in the form of the Rio Hondo River bed which makes it more correct to regard them as separate communities than as fringe areas. The other communities are indistinguishable from incorporated towns or cities and have clearly discernible economic and social characteristics of their own. This entire area has developed from a highly rural to a heavily settled region, although agriculture has remained important, along with residential and industrial land use. That part of the county which lies between the southeast area and Orange County is almost completely agricultural, and the county intends to retain the agricultural zoning of this dairying area.

In addition to the seven urban communities in the southeast area, there are five others located elsewhere in the county, which in 1950 had a population of more than 1,000. These are as follows:

Baldwin Park	18,817
Duarte	13,267
Lancaster	3,594
Newhall	2,527
San Dimas	1,840
Total	40,045

1. *Baldwin Park* lies just east of the San Gabriel River and northwest of the City of West Covina.

2. *Duarte* is situated just south of Foothill Boulevard, between the Cities of Monrovia and Azusa.

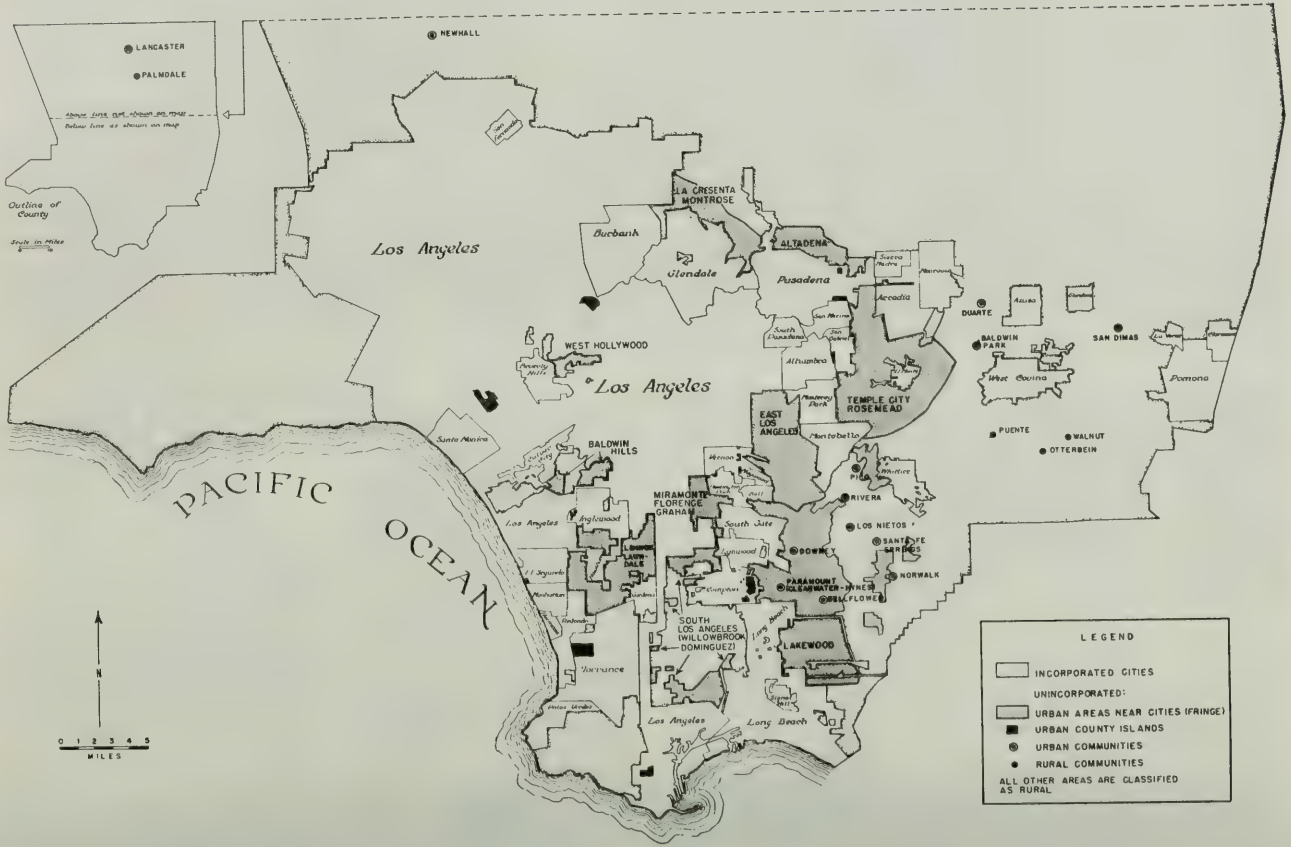
3. *Newhall* lies on San Fernando Road, five miles north of the city limits of Los Angeles, at their northernmost point in San Fernando Valley. This community is one of the three unincorporated places in Los Angeles County listed by the 1950 Census as having a population of more than 1,000. The population of Newhall was placed at 2,527 in 1950.

4. *Lancaster* is the largest community in Antelope Valley, and is situated some 10 miles south of the county's northern boundary on the Sierra Highway. Population in 1950 was estimated at 3,594.

5. *San Dimas,* with a 1950 population of 1,840, is the only one of the five communities with less than 2,500 population and therefore is the only area omitted from the Bureau of the Census' total urban population figure for Los Angeles County. Nevertheless, this sizable center, situated about two miles west of the City of La Verne in the eastern sector of the county, is definitely urban in character and

FIGURE 13

LOS ANGELES AREA
UNINCORPORATED URBAN AREAS
1952



should be included as an unincorporated urban community.

County "Islands"

In addition to the fringe areas and urban communities so far described, there are 29 unincorporated "islands" in the Los Angeles area. Seventeen of these are single islands, and 12 are made up of two or more islands located fairly close to one another. The total population of these islands was about 25,000 in 1950. Ten of these areas lie between the boundaries of incorporated cities, while the remaining 19 lie entirely within a single city. All of them are less than one square mile in area and only eight had a population in 1950 which exceeded 500 persons. According to the Los Angeles City Planning Commission, 13 of the 29 islands have urban land use characteristics. The location of these island areas is shown in Figure 13. The distribution of the island areas by size of population in 1950 was as follows:[4]

1950 population	*Number of islands*
0	1
1 to 19	4
20 to 99	6
100 to 499	2
500 to 999	2
1,000 to 1,999	3
2,000 to 2,999	1
3,000 to 6,999	2
Not pecisely known, but probably under 100	7
Not precisely known, but probably under 500	1
Total	29

The most heavily populated island is Sawtelle, located in West Los Angeles, west of Beverly Hills, which in 1950 had a population of 6,600. It is the site of a veterans' home and hospital and is entirely owned and operated by the Federal Government. The second largest island is East Compton, with an area slightly over one square mile and an estimated population in 1950 of 6,000. The next two largest islands are in the City of Pasadena, with a combined population of about 5,000 and a total area of about 0.7 square miles. The only other islands which are significant are La Rambla (population 1,200) in the hills of western San Pedro; Inglewood (population 1,200) in the western sector of the City of Inglewood; Clifton Heights (population 950) between the Cities of Redondo Beach and Torrance; and El Porto Beach (population 750) on the ocean front between the Cities of El Segundo and Manhattan Beach.

In summary then, the population of the principal urban areas outside cities in 1950 was:

Number	*Type of unincorporated urban areas*	*1950 population*	*Percent of county total*
10	Fringe areas	555,683	13.4
12	Communities	181,780	4.4
13	County islands	15,000 [a]	0.4
	Totals	752,463	18.1

[a] The other 16 "islands," with a population of about 10,000, are not considered urban in character.

It should be understood that the total population of 752,463 in the unincorporated urban areas of Los Angeles County as of 1950 does not purport to be precise. Estimates of the Los Angeles Chamber of Commerce include the population of areas where the land use is less intensive than the accepted definition of *urban* land use. However, there is no other practicable method for estimating the population of the unincorporated urban areas. The Census Bureau states: "Although there are unincorporated places within the urban fringe, it was not feasible to establish boundaries for such places and therefore they are not identified as separate places."[5]

The figure of 752,463 is exceedingly close to the unincorporated urban figure of 767,454 given by the Bureau of the Census. It should be recalled that the census classifies the urban population under rather rigid rules concerning population density, absolute size, and distance away from other urban population, while the urban population figure developed in this report attempts to account for all persons who are likely to require services associated with urban land use. In terms of the local governmental services required by urban land use, the figure of 752,463 probably understates the over-all service load, since it does not include communities of an urban character which have less than 1,000 persons, and there are several such communities in Los Angeles County, particularly in the Puente Hills area and in Antelope Valley. Of this total unincorporated urban population, about three-fourths resided in the fringe areas and unincorporated communities, while about one-fourth lived in outlying communities. The detailed population distribution in 1950, therefore, is shown in Table 2, below:

TABLE 2

LOS ANGELES COUNTY POPULATION BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS 1950

Areas	*Population*	*Percent of total county population*
Cities	3,279,761	79.0
Los Angeles	1,970,358	47.4
Long Beach	250,767	6.0
Pasadena	104,577	2.5
Glendale	95,702	2.3
Burbank	78,577	1.9
Santa Monica	71,595	1.7
Alhambra	51,359	1.2
South Gate	51,116	1.2
Compton	47,991	1.2
Inglewood	46,185	1.1
Remaining 35 cities	511,534	12.3
Unincorporated urban areas	752,463	18.1
Fringe areas	555,683	13.4
East Los Angeles	135,983	3.2
Temple City-Rosemead	111,260	2.7
Lenox-Lawndale	84,907	2.0
South Los Angeles	53,011	1.3
Miramonte-Florence-Graham	52,996	1.3
Altadena	35,168	0.8
Lakewood	31,074	0.7
West Hollywood	21,734	0.5
La Crescenta-Montrose	18,895	0.5
Baldwin Hills	10,655	0.3

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[4] It is not possible to obtain accurate population counts for some islands, as they are included in the same census tract with other areas. For such islands, the best available estimates have been used.

[5] U. S. Bureau of the Census, *U. S. Census of Population: 1950*, Vol. 1, "Number of Inhabitants, Chapter 5: California," U. S. Government Printing Office, Washington, D. C., 1951, p. vi.

TABLE 2—Continued

LOS ANGELES COUNTY
POPULATION BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS
1950

Areas	*Population*	*Percent of total county population*
Downey	29,516	0.7
Norwalk	27,619	0.6
Baldwin Park	18,817	0.5
Paramount	18,592	0.5
Bellflower	18,572	0.5
Pico-Rivera	18,225	0.4
Los Nietos	16,139	0.4
Duarte	13,267	0.3
Santa Fe Springs	13,072	0.3
Lancaster	3,594	0.1
Newhall	2,527	0.1
San Dimas	1,840	[a]
County islands	15,000	0.4
Rural areas [b]	119,463	2.9
Total	4,151,687	100.0

NOTES:
[a] Less than one-twentieth of 1 percent.
[b] Includes all population other than that in cities or in areas with urban characteristics. In Los Angeles County this figure includes a few communities of less than 1,000 population which have urban characteristics.

SOURCE: U. S. Bureau of the Census, "U. S. Census of Population: 1950." Vol. I, "Number of Inhabitants," Chapter 5: California." U. S. Government Printing Office, Washington, D. C., 1951; the Los Angeles County Regional Planning Commission; and the Los Angeles Chamber of Commerce.

Assessed Valuations

The 22 unincorporated urban areas shown in Table 2 accounted for an estimated total assessed valuation of $729,635,742, or 12.6 percent, of the total county tax base of $5,787,439,475 for the Fiscal Year 1951-52. This estimate does not include valuations lying within any county islands. The distribution of the assessed valuations among the urban areas, as well as inside incorporated cities and unincorporated rural areas, is presented in Table 3.[6]

Table 3 shows that 81.4 percent of the total valuation of Los Angeles County is located inside incorporated cities; 12.6 percent lies within the unincorporated urban areas; and 6.0 percent is situated in the rural areas. Some of the unincorporated urban areas contain significant amounts of industrial as well as residential types of property. The East Los Angeles and Miramonte-Florence-Graham areas show heavy concentrations of industry, and one estimate received by the committee placed the assessed value of industrial property in the East Los Angeles area in excess of $75 million, or about one-half the total. Major industrial development also characterizes the southeast area, particularly south of Whittier and in the vicinity of Norwalk, Downey and Paramount. Moderate amounts of industrial property are also located in the areas of Lennox-Lawndale, South Los Angeles and Temple City-Rosemead. These are shown in Figure 6 above.

On a per capita basis, the assessed valuations in the cities and in the unincorporated urban areas compare as follows:

	Population 1950	*Assessed valuation 1951-52*	*Per capita valuation*
Cities	3,279,761	$4,709,128,490	$1,436
Unincorporated urban areas	752,463	729,635,742	970

TABLE 3

LOS ANGELES COUNTY
ASSESSED VALUATIONS BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS
1951-52

Areas	*Assessed valuation*	*Percent of total county assessed valuation*
Cities	$4,709,128,490	81.4
Los Angeles	2,652,090,910	45.8
Long Beach	341,888,475	5.9
Pasadena	157,408,340	2.7
Glendale	133,677,035	2.3
Burbank	125,951,100	2.2
Santa Monica	109,125,100	1.9
Alhambra	74,066,100	1.3
South Gate	53,389,550	0.9
Compton	43,068,080	0.7
Inglewood	59,306,400	1.0
Remaining 35 cities	959,157,400	16.6
Unincorporated urban areas	729,635,742	12.6
Fringe areas	599,300,662	10.3
East Los Angeles	147,222,690	2.5
Temple City-Rosemead	62,817,920	1.1
Lennox-Lawndale	78,865,830	1.3
South Los Angeles	107,597,110	1.9
Miramonte-Florence-Graham	37,912,530	0.7
Altadena	35,877,120	0.6
Lakewood	43,500,000	0.7
West Hollywood	34,761,250	0.6
La Crescenta-Montrose	32,840,472	0.6
Baldwin Hills	17,905,740	0.3
Other communities	130,335,080	2.3
County islands	[a]	--
Rural areas	348,675,243	6.0
Total	$5,787,439,475	100.0

NOTE: [a] Data on valuation not available for these islands.

SOURCE: "Taxpayers' Guide, 1951," Los Angeles County; estimates of valuations for the unincorporated urban areas were computed for this committee by staff members of the county engineer's office, on the basis of school and special district assessed valuations.

The per capita valuation for urban areas outside cities amounts to only about 68 percent of that found inside cities, despite the aforementioned industrial development which exists in some of the outside areas. Table 4 presents the per capita figures for all cities and urban areas.

Table 5 shows the percentage distribution of the population in 1950 and the assessed valuations of incorporated and unincorporated areas in 1951. The incorporated cities show almost the same proportion of population and assessed valuation, or 79.0 and 81.4 percent respectively. The corresponding figures for the entire unincorporated area are 21.0 and 18.6 percent. The unincorporated urban areas show 18.1 percent of the 1950 population and only 12.6 percent of the 1951 assessed valuations, while the rural areas show 2.9 percent of the population and 6.0 percent of the assessed valuations. The conclusions that may be drawn from this comparison are that the relationship between population and assessed valuation is positive and remarkably close when the cities are compared with the *entire* unincorporated area, but that no such relationship obtains when the urban and rural unincorporated areas are contrasted. To the extent that the valuation analysis for the unincorporated

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[6] Table 1, Appendix E, lists the 1951 assessed valuations for each of the 45 cities in Los Angeles County.

TABLE 4

LOS ANGELES COUNTY

PER CAPITA ASSESSED VALUATIONS BY CITIES, UNINCORPORATED URBAN AREAS AND RURAL AREAS

1951-52

Area	*Per capita assessed valuation*
Cities	$1,436
Los Angeles	1,346
Long Beach	1,363
Pasadena	1,505
Glendale	1,397
Burbank	1,603
Santa Monica	1,524
Alhambra	1,442
South Gate	1,044
Compton	897
Inglewood	1,284
Pomona	1,190
Huntington Park	1,667
Beverly Hills	4,172
Lynwood	877
Redondo Beach	1,271
Whittier	1,252
Arcadia	1,840
Torrance	2,461
Montebello	1,375
Monterey Park	903
San Gabriel	1,184
Monrovia	1,181
Culver City	2,188
Manhattan Beach	844
South Pasadena	1,267
Hawthorne	802
Bell	750
Gardena	711
Maywood	720
San Fernando	973
Hermosa Beach	917
San Marino	2,841
Azusa	1,030
El Monte	1,584
El Segundo	4,935
Sierra Madre	993
Claremont	1,067
West Covina	1,607
La Verne	698
Signal Hill	7,380
Glendora	956
Covina	1,452
Palos Verdes Estates	2,747
Avalon	2,647
Vernon	354,760
Unincorporated urban areas	970
Fringe areas	1,078
East Los Angeles	1,082
Temple City-Rosemead	565
Lennox-Lawndale	929
South Los Angeles	2,030
Miramonte-Florence-Graham	715
Altadena	1,020
Lakewood	1,400
West Hollywood	1,599
La Crescenta-Montrose	1,738
Baldwin Hills	1,680
Other communities	717
County islands	---
Rural areas	2,919
Total	$1,394

SOURCE: Data from Tables 2 and 3.

areas is accurate, this inverse relationship between population and valuation suggests that the rural population bears a relatively heavier local share of the costs of county government than do the residents of urban areas outside cities.

TABLE 5

LOS ANGELES COUNTY

PERCENTAGE DISTRIBUTION OF POPULATION IN 1950 AND ASSESSED VALUATIONS IN 1951-52, BY AREAS

Area	*Percent of total population 1950*	*Percent of total assessed valuation 1951-52*
Cities	79.0	81.4
Los Angeles	47.4	45.8
Long Beach	6.0	5.9
Pasadena	2.5	2.7
Glendale	2.3	2.3
Burbank	1.9	2.2
Santa Monica	1.7	1.9
Alhambra	1.2	1.3
South Gate	1.2	0.9
Compton	1.2	0.7
Inglewood	1.1	1.0
Remaining 35 cities	12.3	16.6
Unincorporated urban areas	18.1	12.6
Fringe areas	13.4	10.3
East Los Angeles	3.2	2.5
Temple City-Rosemead	2.7	1.1
Lennox-Lawndale	2.0	1.3
South Los Angeles	1.3	1.9
Miramonte-Florence-Graham	1.3	0.7
Altadena	0.8	0.6
Lakewood	0.7	0.7
West Hollywood	0.5	0.6
La Crescenta-Montrose	0.5	0.6
Baldwin Hills	0.3	0.3
Other communities	4.3	2.3
County islands	0.4	--
Rural areas	2.9	6.0
Total	100.0	100.0

SOURCE: Data from Tables 2 and 3.

Recent Annexations in Los Angeles County

During the period from 1940 to mid-1952 there were some 358 annexations affecting 31 cities in Los Angeles County. With relatively few exceptions, however, the acquired parcels amounted to less than 100 acres each and had no population at the time of annexation. The fact that so many were uninhabited often permitted annexation proceedings to be launched by the cities and carried to completion without the holding of elections in the areas to be annexed. According to a recent study made by the Haynes Foundation, the initiative for annexation with few exceptions came from the subdividers themselves. The foundation reported that "* * * many annexations of the past decade were of small, newly subdivided tracts brought into the cities by real estate men as an aid to property sales. Outstanding examples of this type of gradual accretion of territory are Compton, whose 69 annexations in 10 years, 1941 to 1950, totaled only 2.7 square miles; and Whittier, which added 1.4 square miles through 42 annexations in the same 10 years."[7]

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[7] Richard Bigger and James D. Kitchen, *Metropolitan Los Angeles, A Study in Integration: II. How the Cities Grew,* The Haynes Foundation, Los Angeles, California, 1952, p. 221.

The cities reporting the greatest annexation activity during the period were Compton, El Monte, Long Beach, Los Angeles, Lynwood, Pasadena and Whittier. The amount of annexation activity is summarized below:

	Number of cities reporting	*Number of annexations involved*
No annexations	14	—
Annexations under 100 acres each	11	96
Annexations over 100 acres each	20	262
Total	45	358

Of the 96 annexations involving less than 100 acres, most had little or no population. Two, however, had a population which was estimated at better than 500 persons viz., a 44-acre county island annexed to Pasadena in 1945, and a nine-acre tract annexed to Long Beach in 1950.

Of the 262 annexations having more than 100 acres each, 12 cities accounted for 209 which had no populations; six cities reported 49 with a population in each case of less than 500; and two cities annexed four areas involving more than 500 persons. Two of the latter occurred in October, 1951, and January, 1952, when approximately 3,500 acres and 8,600 population in the La Crescenta-Montrose area were annexed to Glendale. The other two were additions to Los Angeles in 1947 and 1948, involving several hundred acres and a considerable block of population in the Angeles Mesa area, east of Culver City.

Although the exact number is not known, it appears that annexation activity during the period from 1940 to 1952 did not add more than 15,000 persons to the population of various cities. For a county the size of Los Angeles this recent annexation history is hardly impressive. The possibility of annexing Altadena to Pasadena and Lakewood to Long Beach has been discussed in recent months, but there is no immediate evidence which indicates that these large-scale annexations will occur.

SPECIAL DISTRICTS IN LOS ANGELES COUNTY

As of July 1, 1952, there were 384 special districts in Los Angeles County. Fifty-six of these were municipal improvement, sewer and water districts entirely within incorporated cities. These are not further discussed here. The remaining 328 special districts may be classified by function in the following manner.

Type of district		*Total number on July 1, 1952*
Protection to persons and property		9
* Fire protection	8	
Flood control	1	
Health and sanitation		105
* Cemetery	4	
* Garbage disposal	14	
Mosquito abatement	3	
* Sanitation	22	
* Sewer maintenance	62	
Public works and roads		169
* Lighting, highway	91	
* Lighting maintenance	72	
* Road, supervisorial	5	
* Vehicle parking	1	
Utilities and agriculture		37
Irrigation	5	
Soil conservation	5	
* Water	17	
* Water works	10	
* Library		2
Recreation		6
* Park, recreation and parkway	6	
Total special districts		328

Districts marked with an asterisk are those which are most likely to involve the performance of selected services to residents of unincorporated urban areas, and therefore to diminish the demands upon county services paid for out of general county funds. There are 302 such districts. It is interesting to note that there are no special districts providing police protection or hospital services. However, many of the districts listed here affect the other categories of service selected for this study.

Of these special districts 272 provide services to residents of urban unincorporated areas. These include the fire protection, garbage disposal, sanitation, sewer maintenance, lighting, lighting maintenance, library and vehicle parking districts. Further, 42 special districts serve urban, suburban, and occasionally, rural areas outside cities. These include the cemetery, recreation, water, water works and supervisorial road districts. The remaining 14 districts serve areas which are predominantly rural, as in the case of irrigation, soil conservation, flood control, and mosquito abatement districts.

With respect to the provision of "municipal-type" services in the urban areas of Los Angeles County, most of the 272 above-mentioned districts are involved, as well as the 11 districts which provide recreational and road services. Table 6 shows the type, number, assessed valuation and budgeted expenditures of special districts in Los Angeles County in fiscal 1952.

The services provided by these special districts are discussed in the following sections. It should be noted, however, that there is a discrepancy in the number of special districts as shown in Table 6 (284) and in the discussion above (328). This results from the fact that the source of the information used for assessed valuations and tax levies was the Los Angeles County Taxpayers' Guide for 1951-52, which was the latest available source for such data. Meanwhile, several district formations, consolidations and dissolutions have occurred, changing the number of special districts.

TABLE 6

LOS ANGELES COUNTY

ASSESSED VALUATIONS AND EXPENDITURES OF SPECIAL DISTRICTS

1951-52

			Assessed valuation				
Type of district	*Number of districts*	*Governed by*	*Total amount*	*As a percent of total county valuation*	*Amount in unincorporated areas*	*Valuation in unincorporated area as a percent of total district valuation*	*Budgeted operational expenditures or tax levies 1951-52*[a]
Fire protection	9	Board of supervisors	$821,041,935	14.2	$821,041,935	100.0	$4,806,828
Lighting	90	Board of supervisors	410,178,155	7.1	410,178,155	100.0	773,836
Lighting maintenance	48	Board of supervisors	55,878,220	1.0	51,924,950	92.9	180,982
Park, recreation, and parkway	6	Board of supervisors[b]	63,398,390	1.1	63,398,390	100.0	286,700
Library	2	Local boards	40,650,240	0.7	35,257,240	86.7	46,937
Sanitation	15	Local boards	1,884,157,440	32.6	904,272,855[c]	48.0	3,216,781
Sewer maintenance	77	Board of supervisors	430,451,360	7.4	430,451,360	100.0	327,245
Garbage disposal	14	Board of supervisors	281,120,115	4.8	281,120,115	100.0	486,405
County water districts	10	Local boards	98,196,930	1.7	98,196,930	100.0	127,798
Water works	10	Board of supervisors	21,668,670	0.4	21,668,670	100.0	344,080
Flood control	1	Board of supervisors	4,753,858,880	82.1	44,730,390	0.9	18,227,450
Mosquito abatement	2	Local boards	146,492,580	2.5	146,492,580	100.0	186,854

NOTES:

[a] Bond interest and principal requirements, reserves, and estimated delinquencies are not included.

[b] Miraleste Park, Recreation and Parkway District is self-governing.

[c] The figure includes an unknown amount of incorporated valuations inside portions of 12 cities.

SOURCE: "Taxpayers' Guide, 1951," Los Angeles County.

Fire Protection Districts

As of July 1, 1952, there were eight fire protection districts, one less than the number listed in Table 6. This resulted from the combination of the Belvedere-Laguna Fire District with the Consolidated Fire District. In fact, in recent years the number of fire districts has been reduced by unification with the large Consolidated District. These eight fire protection districts covered most of the unincorporated territory south of the San Gabriel mountains, and all of the urbanized portions of that territory. They are administered by the county forester and fire warden.[8] According to the chief engineer of the county fire department, fire districts included 4.6 percent of the unincorporated area of the county in 1941, and 7.6 percent in 1951, and 54.4 percent of the assessed valuation in the unincorporated area of the county in 1941 and 76.1 percent in 1951. They also included 88 percent of the population in 1951. Large unincorporated areas in the mountain and desert areas are protected by the U. S. Forest Service and the County Forester and Fire Warden, but the above figures show the extent to which the formation of fire districts during the past 10 years has resulted in the inclusion of over four-fifths of the total population and three-fourths of the total assessed valuation of the unincorporated areas.

As the result of a policy adopted by the county in 1950, which stemmed from discussions between the county and the fire districts, whenever a tract map is filed involving an area adjacent to a fire protection district, the county fire warden petitions the board of supervisors to annex the area to the district. The board is empowered by Sections 14510 to 14515 of the Health and Safety Code to initiate such annexation proceedings. This policy, according to the county fire warden, has brought all urban areas within fire districts. The only areas not protected by fire districts are rural and suburban areas which in no case contain communities exceeding 400 persons.

In 1951-52, the budgeted expenditures of the eight fire districts ranged from $7,380 for the Palmdale District to $3,790,026 for the Consolidated District. These budgeted expenditures required tax rates ranging from $0.3948 for Palmdale to $1.5571 for Universal City. Total expenditures budgeted for 1951-52 exceeded $4.8 million.

The relative size of the districts is indicated both by the assessed valuations and the budget requirements for Fiscal 1952. These figures taken from the *Taxpayers' Guide, 1951* and the County Budget for 1952, are shown below.

Fire district	*Assessed valuations 1951-52*	*Budget requirements 1951-52*
Altadena	$35,877,120	$281,208
Consolidated	658,585,885	5,069,933
East Los Angeles	111,299,740	660,340
Lancaster	5,082,610	50,515
Newhall	2,515,090	15,554
Palmdale	1,445,750	8,302
San Dimas	1,800,500	19,490
Universal City	4,435,240	97,239

The operations supported by district levies include the fighting of all fires within the district boundaries (except for a few handled entirely by city departments or county units pursuant to mutual aid arrangements) and fire prevention activities carried out by county personnel but paid for by the districts. The relationships between county fire operations and the operations of fire protection districts is discussed more fully in a later section on the county forester and fire warden.

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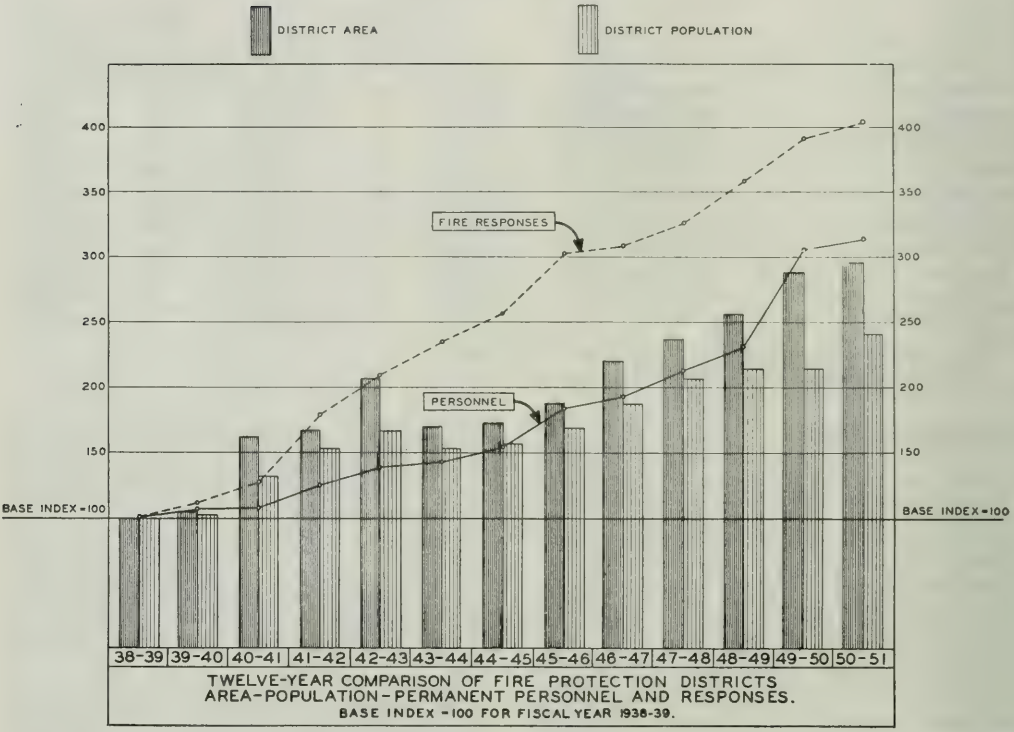
[8] The location and the areas included in these fire districts are shown on Figure 24.

FIGURE 14

LOS ANGELES COUNTY FIRE DISTRICT EXPANSION 1938-39 to 1950-51



TWELVE-YEAR COMPARISON OF FIRE PROTECTION DISTRICTS
AREA-POPULATION-PERMANENT PERSONNEL AND RESPONSES.
BASE INDEX = 100 FOR FISCAL YEAR 1938-39.

Figure 14 shows the upward trend in district area and population; in personnel; and in fire responses during the period from 1938-39 to 1950-51. The work load of fire districts, compared with that of the county's department and the U. S. Forest Service, is shown by the following figures taken from the *Annual Report* of the forester and fire warden for 1951.

Unit	*Number of fires*	*Watershed burned*	*Acreage damaged*	*Damage to property*
Fire protection districts	5,171	---	---	$2,684,759
County department of forester and fire warden (mountain battalions)	705	4,514	$521,427	720,831
U. S. Forest Service	65	9,003	50,259	6,990
Total	5,941	13,517	$571,686	$3,412,580

The quality of fire protection provided by the districts may be judged by the insurance ratings established by the Board of Fire Underwriters of the Pacific. These ratings are on a scale ranging from 1 (highest rating) to 10 (lowest), as follows:

Fire district	*Rating*
Altadena	6
Consolidated:	
7 subareas	5
9 subareas	6
8 subareas	7
2 subareas	8
East Los Angeles	7
Lancaster	7
Newhall	Not listed
Palmdale	8
San Dimas	7
Universal City	7

By comparison, the insurance ratings for the 45 cities are as follows:

Number of cities	*Rating*
6	3
5	4
8	5
17	6
8	7
1	10 (new rating pending)

Most of the fire districts have been given ratings as high or higher than those for one-half the cities. The 11 cities with ratings better than five are, with one or two exceptions, those with a population much larger than any of the fire districts except the Consolidated District. The level of protection in the fire districts is much higher than in the unincorporated areas outside fire districts, all of which have a rating of 10. So far as fire insurance rates are concerned, a rating of 10 is equivalent to no protection.

To summarize, then, it appears that all the urban areas outside cities are inside fire protection districts; that they are obtaining a level of fire protection service comparable to that performed by municipal fire departments in cities of similar size in population; and that the county is involved only to the extent of certain reciprocal responses to fires under mutual aid and other services performed for the districts on a contractual cost basis.

Sanitation and Sewer Maintenance Districts

While annexations, consolidations and dissolutions reduced the combined total of these two types of districts from 92 in 1951 to 84 by July 1, 1952, this discussion is presented in terms of the earlier situation since the assessed valuations and tax levies relate to that earlier year. In 1951 there were 15 sanitation districts, governed by local boards, and 77 sewer maintenance districts, governed by the county board of supervisors. The sewer maintenance districts were administered by the county surveyor.

Sanitation districts showed a total assessed valuation of $1,884,157,440, over half of which was located inside cities within the districts. While it was not possible to make an exact calculation of assessed valuations by areas it is nevertheless evident that a large proportion of the valuation of the unincorporated area and a major part of the assessed valuation of the urban areas outside cities were included in the sanitation districts. Since the county itself provides no services of this nature, the coverage of the sanitation districts is not of very great significance to the present study. However, about half of the total of the tax levies of 3.2 million dollars for the operations of these districts during 1951-52 may be considered as the amount required to provide sanitation services to the unincorporated urban areas. District levies for maintenance purposes ranged from $683 for District No. 9 to $633,455 for No. 2. Tax rates ranging from $0.0755 to $0.2625 per $100 of assessed valuation were applied in these districts. Interest and sinking fund requirements required an aggregate tax levy of 1.2 million dollars and tax rates for this purpose ranged from $0.0279 to $1.0331 per $100 of assessed valuation.

No cities were included in the 77 sewer maintenance districts. The total valuation of these districts amounted to $430,451,360, or 40 percent of the total assessed valuation outside cities. As in the case of the sanitation districts, however, since the county itself did not engage in sewer maintenance operations, the coverage of these districts is not as important to this report as coverage of such other services as police or fire protection would be. Total expenditures amounted to $327,245 and they ranged from a low of $50 to a high of $54,660. Sixteen districts listed no tax levies for fiscal 1952. The highest tax rate applied for sewer maintenance was $0.5870. These outlays were largely for maintenance and operation; they involved no obligations for debt service.

Garbage Disposal Districts

The 14 garbage disposal districts shown in Table 6 are governed by the board of supervisors and administered by the county health department. They had a total assessed valuation of $281,120,115, and they included urban areas outside cities with 26 percent of the total assessed valuation of the unincorporated region of the county. Budgeted expenditures amounted to $486,405, or an average of $34,743 per district. Expenditures ranged from $4,031 to $153,941 and the tax rates necessary to raise these amounts ranged from a low of $0.0932 to a high of $0.8597 per $100 of assessed valuation.

Lighting Districts

Many of the unincorporated urban areas in Los Angeles County received street lighting services by means of special district organization. There were 90 lighting districts, all in unincorporated territory, and 48 lighting maintenance districts, six of which were inside incorporated cities. Moreover, about 30 districts are currently being formed, and requests for more lighting are increasing with real estate development. All the districts performed the essentially similar operations of establishing, equipping and maintaining street lights on public highways. For the lighting districts, however, the utility companies which furnished the power carried out most of the maintenance work, whereas the county performed the maintenance for the lighting maintenance districts. The board of supervisors acts as the governing body for all the lighting districts, and the county road department administers them.

After allowing for the incorporated portions inside lighting maintenance districts, the total valuation within all lighting districts amounted to approximately 466 million dollars or more than two-fifths of the total assessed valuation outside cities. Aggregate operation and maintenance expenditures budgeted for fiscal 1952 totaled $954,818, an average of about $7,000 per district. These expenditures varied from $260 to $40,872 per district. The tax rates required to raise these amounts ranged from $0.0095 to $3.7104 per $100 of assessed valuation.

Library Districts

The Altadena and Palos Verdes Library Districts in Los Angeles County are the only two of their kind in the county. Their combined assessed valuation is slightly over 40 million dollars, but 5.4 million dollars of this lies within the City of Palos Verdes Estates. The remaining assessed valuation amounts to about 4 percent of the total of the assessed valuation outside cities. Both districts are governed by local boards. Maintenance levies for fiscal 1952 amounted to $46,947 in the aggregate. These levies required tax rates per $100 of

TABLE 7

LOS ANGELES COUNTY
OVERHEAD SERVICES PROVIDED BY THE COUNTY TO SPECIAL DISTRICTS AND CHARGES MADE FOR SUCH SERVICES[a]

1950-51

			Amounts paid 1950-51							
Type of district	*Number of districts*	*Service*	*Department administrative overhead*	*Civil service*[i]	*Purchasing*[l]	*Surveyor-engineer*[m]	*Mechanical*[n]	*Telephone*[o]	*Retirement*	*Workmen's compensation*[p]
Fire protection	9	Forester and fire warden Administration, accounting, procurement, mutual aid and personnel.	$123,697[b]	$10,282[j]	$3,535	$1,126	$12,473	---	$140,522	$95,433
Flood control	1	(Self-administered)	---	360[k]	7,467	---	---	$268	142,574	(pay directly)
Garbage disposal	14	Health department Administration, accounting, contracts and complaint investigation.	4,301[c]	---	---	---	---	---	(not charged)	(not charged)
		County Auditor	4,942[d]							
Lighting	89	Road department	18,051[e]	---	---	---	---	---	(not charged)	(not charged)
Lighting maintenance	55	General engineering and administration (no charge made for road commissioner's office or business office).	5,583[e]	---	---	---	---	---	(not charged)	(not charged)
Park, recreation, and parkway	5	Parks and recreation General administration and accounting.	(not charged)	---	---	---	---	---	1,342	632
Sewer maintenance	77	Surveyor-engineer Administration and accounting (charges include retirement costs of all employees assigned).	19,674[f]	---	---	---	---	---	---	---
Waterworks	10	Mechanical Administration and accounting.	27,774[g]	---	---	---	---	---	(not charged)	(not charged)
County improvement	241	Surveyor-engineer General administration and accounting (charge includes cost of retirement, vacation and sick leave of all employees assigned).	58,750[h]	---	---	---	---	---	---	---

NOTES:

[a] These districts also receive the services of the board of supervisors, chief administrative office, auditor, county counsel, tax collector, and treasurer for which no charge is made.

[b] Forester and fire warden services to fire protection districts: Central personnel—100 percent of salaries and operating costs of employees who devote all of their time to fire protection districts; 50 percent of salaries and operating costs of employees who devote approximately one-half of their time to the districts. (Forester and fire warden's office, accounting mapping, procurement, mutual aid and personnel.) In 1950-51 these charges included workmen's compensation costs but not retirement costs; subsequently, retirement costs have been added to the charges to the districts.

[c] Health department services to garbage disposal districts: Salary and mileage of sanitarian assigned to administer districts. Charge does not include any administrative overhead for health officer's office or business office, nor does it include retirement, workmen's compensation and other operating costs.

[d] County auditor services to garbage disposal districts: Charge to districts is based on actual salary and mileage expenditures in providing meter count service which is used to determine contract charges, plus 10 percent for administrative overhead, plus cost of retirement and supplies.

[e] Road department services to lighting and lighting maintenance districts: Charge is based upon amount of central office employee time which is devoted to the districts. This total cost is pro-rated among the districts based on the number of lights.

[f] Surveyor-engineer services to sewer maintenance districts: Fifteen percent is added to the charges for direct service to cover the administrative overhead of the road commissioner and business office, plus workmen's compensation and retirement.

[g] Mechanical department services to water works districts: The charges to the water works districts for administrative overhead are based on the following three formulas: 40 percent of the salary of the engineer who directs the activities of the water works districts; five cents per month, per consumer; and 10 percent of all salaries for direct services for the construction and maintenance of the facilities of the districts. This activity has now been transferred to the county engineer. The county engineer is now using the same formula which was used by the mechanical department but plans to make a study of these charges and revise them if necessary.

[h] Surveyor-engineer to county improvement districts: Twenty-two percent of all direct salaries to cover the administrative overhead of the surveyor-engineer and business office, plus vacation and sick leave time, plus retirement and workmen's compensation.

[i] Civil service services to districts other than fire protection and flood control: The civil service commission provides no direct service to any districts other than the fire protection and flood control districts. None of the other districts have civil service employees of the districts. Services to the other districts are provided by civil service employees of county departments for whom no charge is made to the districts for the services of the civil service commission.

[j] Civil service services to fire protection districts: The civil service charge to the fire protection districts is based on the percent which the fire protection district employees bear to the total employees served by the civil service department, applied to the total expenditures of the civil service department.

assessed valuation of $0.0912 for the Altadena District and $0.1773 for the Palos Verdes District. The latter district also applied a tax rate of $0.0295 to meet debt service requirements.

Recreation Districts

The county contained six park, recreation, and parkway districts viz., Baldwin Park, Bella Vista, Lakewood, Miraleste, Montebello Park, and Southeast. No incorporated cities were included in these districts and in the aggregate their assessed valuations amounted to 6 percent of the total assessed valuation of the unincorporated area. All districts except Miraleste are governed by the board of supervisors and administered by the county parks and recreation department.

The Baldwin Park and Southeast Districts are the only ones which provided recreational areas, with facilities ranging from swimming pools, ball fields, and tennis courts to general activity buildings, craft and hobby shops, and picnic areas. They also created and maintained general park and landscaped areas. The remaining districts performed parkway landscaping only. Such district operations were in addition to county recreational activities conducted in the same areas, and presumably they were designed to satisfy the demands of particular localities for services exceeding those provided by the county.

Aggregate budgeted expenditures for fiscal 1952 exceeded $286,000, or an average of about $48,000 per district. Bella Vista showed the lowest expenditure, $3,774, while the Southeast District reported the highest budget, $175,273. Tax rates ranged from $0.0763 per $100 of assessed valuation for Baldwin Park District to $0.5874 in the Bella Vista District.

Road Districts

Los Angeles County also contained five supervisorial road districts, which comprised all of the unincorporated territory of the county and which were administered by the county road department. Property tax rates ranged from $0.0282 to $0.0342 per $100 of assessed valuation, and the aggregate of the property tax levies of these districts amounted to $318,000 in 1952. These revenues were spent for maintenance and repair of unpaved roads, culverts, guard fences, trimming highway trees and shrubs, and other highway purposes in the unincorporated areas.

Other Special Districts

In addition to the districts discussed above there were other types of special single-purpose units in Los Angeles County. These, however, are not of immediate concern to this study. They included such units as cemetery, water, flood control, and mosquito abatement districts, and the so-called special assessment districts formed for the purpose of obtaining physical improvements and financed by levies against one type of property, e.g., land. In Los Angeles County there were four types of such special assessment districts, county improvement districts, county street opening and widening districts, assessment bond refunding districts (1933 act), and refunding bond assessment districts (1935 act). The most numerous of these four types were the county improvement districts, of which there were 241 with bonds outstanding in 1951. They were located in the unincorporated areas south of the San Gabriel Mountains and every unincorporated area named in the preceding section of this report included 10 or more of these units. The majority of the districts were formed for sewer facilities, but 13 were formed to meet the construction costs of curbs, sidewalks, gutters, or pavements, and 12 were formed for the installation of street lights.

County Services Provided to Special Districts

In Los Angeles County all of the special districts discussed above receive property assessment and tax collection services from the county without charge. Districts not governed by local boards also receive the services of the board of supervisors, chief administrative officer, auditor, county counsel, and treasurer, without charge, as provided for in the enabling statutes. No data are available from which the value of such general free services can be estimated, except in the case of

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[k] Civil service services to the flood control district: The civil service charge to the flood control district is limited to $360 per year as provided in the Flood Control District Act.

[l] Purchase and stores service to special districts: The charges made by purchasing and stores to special districts is based on 6 percent of all issues from the general stores warehouse. Charges are only made to the fire protection districts and the flood control district because the other districts received no issues directly from the purchasing and stores warehouse. Their supplies and equipment are received through direct purchase orders or from the supply of stock maintained by the department which administers their operation.

[m] Surveyor-engineer services to special districts other than sewer maintenance and county improvement districts: The surveyor-engineer charges the fire protection districts cost plus 22 percent for administrative overhead for title and appraisal functions performed to cover the administrative overhead of the surveyor-engineer and accounting offices, plus vacation and sick leave time, plus retirement and workmen's compensation.

In addition to the charge shown above to the fire protection districts for title and appraisal work, the surveyor-engineer provides a blueprinting service to the special districts as well as other county departments. The rates charged for this blueprinting service are surveyed annually to determine that the total receipts for blueprint services equal the cost of the operation of the blueprint plant, plus allowance for administrative overhead, retirement, and workmen's compensation. It is impossible to segregate accurately, from the total amount charged each district for blueprint service, that amount which represents administrative overhead.

The surveyor-engineer provides architectural and construction inspection services to special districts. The direct costs of these services plus administrative overhead are charged to the districts through capital projects.

[n] Mechanical department service to special districts: The mechanical department charges the fire protection districts for the actual expenditures for the operation of the fire shop which maintains fire fighting vehicles and equipment. To these expenditures, 20 percent is added to cover the costs of administrative overhead.

The mechanical department repairs and services most of the automotive equipment for county and district operations. A charge is made to the various departmental and district budgets, per mile, to cover the cost of this service. In computing this charge per mile the county auditor considers, in addition to gas, oil, parts and direct labor costs, the administrative overhead of the mechanical department. It is impossible to segregate accurately, from the total amount charged each district for auto service, that amount which represents administrative overhead.

[o] Telephone department service to special districts: The telephone department charges the flood control district for the actual cost of providing telephone service plus 29 cents per month, per station to cover the administrative overhead of the department's operation.

No charges have been made to any of the other districts for the services of the telephone department because no other districts have district employees who are served directly by the telephone department. However, it should be pointed out that there are some county employees of the departments, which administer the districts, who provide their services exclusively to the districts and who have telephone service through the county's telephone department.

[p] Amounts shown in this column were paid in 1951-52.

SOURCE: Statement prepared for the committee by the Los Angeles County Chief Administrative Office, dated August 22, 1952.

legal counsel. Out of 26 deputy county counsels, nine full-time persons (or time equivalent thereto) are assigned to special district matters. However, six of these work on school district matters and one each on matters relating to the flood control and air pollution control districts. All of these districts affect the entire county. Only one full-time deputy counsel attends to matters arising in connection with "local" special districts.

Despite the fact that few services are stipulated in the statutes relating to special districts as those for which charges may be made, Los Angeles County makes a number of charges for both stipulated and nonstipulated services. These are shown in detail in Table 7 below.

The bulk of the charges shown were for administrative, accounting, engineering, and personnel services of an overhead character. The 260 districts, other than county improvement districts, paid a total of $204,022 for such services received during fiscal 1951. The bases for the charges are explained in the footnotes to the table. Fire protection and flood control districts paid large amounts towards employee retirement funds, and other large sums were involved for fire districts in workmen's compensation and mechanical, purchasing, engineering and civil service functions. The county improvement (special assessment) districts paid a total of $58,750 for general administration and accounting services provided by the county surveyor-engineer.

It should be noted that some districts received certain services free for which other districts were charged. Garbage disposal, lighting, and waterworks districts did not pay for retirement or workmen's compensation while park, recreation and parkway districts did not pay for administrative and accounting services. Nevertheless, the charges shown in Table 7 account for almost all of the significant amounts of county service to special districts with the exception, of course, of services exempted from charge by state statute.

CITY SERVICES EXTENDED TO OUTSIDE AREAS

Table 8 presents the total and per capita expenditures of the cities of Los Angeles County for the governmental services with which the present study is concerned. Because of the large number of cities in the county which share common boundaries, it frequently occurs that many city services provided to nonresidents involve persons living in other incorporated cities as well as in unincorporated areas. This frequently occurs in the use of libraries, recreation facilities and fire protection facilities. Thus the data presented in Table 9 below indicating the extent of "outside" services should not be taken to represent services provided to residents of unincorporated areas only. Breakdowns by location of the residence of the users of these city services are not available.

Table 9 indicates that the cities of Los Angeles County generally charge the residents of other areas for utility and library services, and furnish free such services as recreation and office facilities (general government). The following sections describe the bases and the extent to which various city services are provided to residents and governmental units outside the city on a charge or no-charge arrangement.

City Services Involving Charges

General Government. Twelve cities provided 20 full-time offices for courtrooms and various other county departments. The City of Los Angeles furnished five offices and Burbank provided four offices. Other cities provided one or two offices each.

Protection to Persons and Property. No city police functions were performed for noncity residents on a charge basis. However, the City of South Gate holds prisoners for the county temporarily. During 1951, 106 prisoners were held for an average of slightly over one day each, for which South Gate was paid $215 by the county. Only three cities provided fire protection to noncity residents on an individual contract basis—Glendora, South Gate and Long Beach. This service was not provided, however, on a significant scale. During 1951 the City of Glendora made no outside responses; Long Beach made but one; and South Gate made three. The expenses of these responses were presumably covered by terms of the contract made with surrounding areas.

Utilities. Three cities—Culver City, Los Angeles and Monterey Park—provided outside sewer services pursuant to contracts with sanitation districts or other cities, with charges based on cost of the service. Six cities provided direct sewer service to about 200 customers; two of these cities charged regular city rates and four charged special, higher rates.

Water was supplied by 20 of the 45 cities to a total of 15,604 connections situated outside the respective city limits. Several cities recently passed ordinances forbidding any new supply commitments. For 10 of the supplying cities, the number of connections was less than 100, as shown by the following tabulation:

Number of water connections March, 1952	*Number of cities*
1-10	6
11-100	4
101-1,000	6
1,001-3,600	3
Over 3,600	1
Total	20

The 10 cities with more than 100 outside water connections were:

Beverly Hills	2,374
Compton	150
Covina	300
Glendora	135
Hawthorne	910
Long Beach	1,250
Los Angeles	3,550
Lynwood	290
Manhattan Beach	258
Pasadena	6,147

The City of Torrance charged two outside water customers the regular inside rate, and Long Beach extended water service at the city rate to 950 of its

TABLE 8

LOS ANGELES COUNTY
CITY EXPENDITURES FOR SELECTED FUNCTIONS[a]
1950-51

City	General government		Planning		Police protection[b]		Fire protection[b]		Health		Streets		Recreation	
	Amount	Per capita	Amount[c]	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita	Amount	Per capita
Alhambra	$175,425	$3.42	$7,376	$0.14	$323,217	$6.29	$245,976	$4.79	$939	$0.02	$362,297	$7.05	$160,073	$3.12
Arcadia	101,575	4.40	3,294	0.14	160,566	6.96	101,051	4.38	380	0.02	185,649	8.05	27,613	1.20
Avalon	22,685	15.06	----------	------	25,915	17.21	16,551	10.99	371	0.25	19,826	13.16	4,895	3.25
Azusa	47,862	4.33	----------	------	51,642	4.68	27,235	2.47	25	[d]	91,351	8.27	43,954	3.98
Bell	64,458	4.18	683	0.04	96,476	6.25	59,264	3.84	99	0.01	142,642	9.24	13,192	0.85
Beverly Hills	131,672	4.54	[e]	------	318,331	10.96	263,726	9.08	7,827	0.27	212,258	7.31	246,328	8.48
Burbank	441,511	5.62	23,006	0.29	586,886	7.47	358,335	4.56	42,929	0.55	929,825	11.83	391,821	4.99
Claremont	21,258	3.36	[e]	------	31,459	4.97	11,184	1.77	16	[d]	36,746	5.81	18,762	2.97
Compton	102,052	2.13	344	0.01	195,320	4.07	156,813	3.27	112	[d]	456,449	9.51	87,470	1.82
Covina	25,768	6.51	3,867	0.98	34,218	8.65	19,255	4.87	606	0.15	57,676	14.58	17,251	4.36
Culver City	121,439	6.16	2,150[f]	0.11	179,572	9.11	150,332	7.62	28	[d]	172,773	8.76	180,474	9.15
El Monte	68,036	8.40	5,055	0.62	72,709	8.98	38,766	4.79	18	[d]	39,464	4.87	6,015	0.74
El Segundo	125,900	15.72	5,155[f]	0.64	78,929	9.85	56,838	7.09	455	0.06	64,224	8.02	50,771	6.34
Gardena	65,335	4.54	234	0.02	74,628	5.18	42,765	2.97	----------	------	85,191	5.91	22,225	1.54
Glendale	354,136	3.70	[e]	------	757,628	7.92	617,694	6.45	866	0.01	713,578	7.46	329,468	3.44
Glendora	26,597	6.67	486	0.12	25,000	6.27	11,024	2.76	170	0.04	43,986	11.03	18,516	4.64
Hawthorne	79,929	4.90	555	0.03	135,928	8.33	50,332	3.08	173	0.01	76,957	4.72	29,859	1.83
Hermosa Beach	48,604	4.11	----------	------	85,419	7.22	16,561	1.40	12	[d]	125,732	10.63	21,336	1.80
Huntington Park	432,720	14.69	34	[d]	284,318	9.65	231,066	7.85	350	0.01	261,339	8.87	120,440	4.00
Inglewood	153,300	3.32	3,054[f]	0.07	399,835	8.66	349,520	7.57	803	0.02	457,540	9.91	290,425	6.29
La Verne	13,149	3.13	[e]	------	23,128	5.51	6,119	1.46	----------	------	39,016	9.29	8,507	2.03
Long Beach	1,428,810	5.70	46,964	0.19	2,015,636	8.04	1,376,218	5.49	666,118	2.66	2,995,389	11.94	2,267,119	9.04
Los Angeles	14,216,357	7.22	346,694	0.18	22,587,337	11.46	11,263,437	5.72	2,784,124	1.41	11,991,531	6.09	7,043,204	3.57
Lynwood	92,080	3.57	[e]	------	139,515	5.40	91,381	3.54	72	[d]	170,523	6.60	72,989	2.83
Manhattan Beach	82,402	4.75	3,886	0.22	110,649	6.38	55,256	3.19	12	[d]	118,471	6.84	35,784	2.06
Maywood	39,005	2.93	----------	------	89,781	6.75	41,304	3.11	63	[d]	182,099	13.70	13,660	1.03
Monrovia	99,614	4.93	3,450	0.17	136,967	6.79	69,932	3.46	----------	------	145,219	7.19	67,916	3.36
Montebello	104,301	4.80	[e]	------	156,130	7.18	108,923	5.01	----------	------	160,471	7.38	158,700	7.30
Monterey Park	70,002	3.43	[e]	------	98,639	4.84	76,225	3.74	120	0.01	134,122	6.58	29,271	1.44
Palos Verdes Estates	11,866	6.04	[e]	------	23,438	11.94	8,467	4.31	----------	------	14,358	7.31	36,139	18.41
Pasadena	590,236	5.64	[e]	------	1,105,950	10.58	850,529	8.13	130,865	1.25	1,219,845	11.66	1,159,595	11.09
Pomona	125,249	3.54	[e]	------	269,597	7.61	174,397	4.93	531	0.01	285,705	8.07	172,619	4.88
Redondo Beach	147,238	5.84	3,523	0.14	131,928	5.23	84,866	3.36	972	0.04	155,317	6.16	67,056	2.66
San Fernando	58,826	4.53	2,037	0.16	130,439	10.04	64,034	4.93	55	[d]	138,659	10.67	50,643	3.90
San Gabriel	93,542	4.60	5,006[f]	0.25	103,357	5.08	82,612	4.06	137	0.01	119,274	5.86	70,461	3.46
San Marino	55,745	4.96	[e]	------	126,718	11.28	78,148	6.96	3,736	0.33	102,124	9.09	82,773	7.37
Santa Monica	447,991	6.26	27,912	0.39	714,164	9.97	416,093	5.81	2,962	0.04	588,235	8.22	682,538	9.53
Sierra Madre	17,361	2.39	[e]	------	30,170	4.15	6,960	0.96	81	0.01	55,851	7.68	10,136	1.39
Signal Hill	32,786	8.12	----------	------	55,959	13.85	56,593	14.01	----------	------	80,817	20.00	8,702	2.15
South Gate	119,154	2.33	3,854	0.08	249,227	4.88	174,786	3.42	911	0.02	402,444	7.87	178,306	3.49
South Pasadena	64,829	3.83	1,744	0.10	103,096	6.09	79,784	4.71	1,452	0.09	102,065	6.03	93,765	5.54
Torrance	138,578	6.23	5,054[f]	0.23	145,129	6.53	141,333	6.35	340	0.02	264,040	11.87	113,292	5.09
Vernon	88,468	204.79	[e]	------	117,584	272.18	194,587	450.43	1,200	2.78	53,410	123.63	----------	------
West Covina	20,826	4.63	[e]	------	34,422	7.65	3,247	0.72	53	0.01	41,081	9.13	----------	------
Whittier	98,652	4.14	[e]	------	179,583	7.54	153,834	6.46	637	0.03	125,811	5.28	111,195	4.67
Total[g]	$20,867,329	$6.36	$505,417	$0.18	$32,796,539	$10.00	$18,483,353	$5.64	$3,650,620	$1.44[h]	$24,221,380	$7.38	$14,615,258	$4.46

NOTES:

[a] Includes operation, maintenance, and capital outlay.

[b] The amount shown under "Outlays" in the protection to persons and property classification was divided equally between police and fire protection, except for the cities of Avalon, Azusa, Covina, and Glendora.

[c] Data from the annual financial reports or the budgets of the various cities.

[d] Less than $0.005.

[e] No data available; neither the financial report nor the budget were forwarded to the committee by these cities.

[f] Amount budgeted for fiscal 1951-52.

[g] Per capita figures for all cities together are calculated only on the basis of cities having expenditures for the particular function involved.

[h] Per capita figure, calculated only for the cities which have city-operated health departments, namely, Los Angeles, Long Beach, Beverly Hills, Pasadena, and Vernon, amounts to $1.55.

SOURCE: Unless otherwise indicated, data are from the "Annual Report of Financial Transactions of Municipalities and Counties of California for the Fiscal Year Ending June 30, 1951." Office of the State Controller, Sacramento, Tables 4 and 7.

1,250 outside customers. All other cities charged outside connections higher rates than those prevailing inside the corporate limits.

Recreation. All cities experience use of their parks and recreation facilities, although no charges are shown for this service in Table 9. Charges are made for such facilities as swimming pools and golf courses, but nonresidents pay the same amounts as the residents of the city in most cases. However, these charges cover only operation and maintenance costs; capital outlays are borne by the residents of the cities. In general, city recreational facilities are freely available for all who wish to use them.

Library. Twenty-three of the 45 cities have no libraries of their own, being served by the county library system. Of the 22 cities which have libraries, 18

TABLE 9
LOS ANGELES COUNTY
CITY SERVICES PROVIDED TO NONCITY RESIDENTS AND TO OTHER GOVERNMENTAL UNITS
1951

	General government		*Police protection*		*Care of county prisoners*		*Fire protection*[a]		*Health and ambulance*		*Utilities*		*Recreation and parks*		*Library*		*Other*[b]	
Cities	*Charge*	*No charge*	*Charge*	*No charge*	*Charge*	*No charge*	*Charge*	*No charge*	*Charge*	*No charge*	*Charge*	*No charge*	*Charge*	*No charge*	*Charge*	*No charge*	*Charge*	*No charge*
Alhambra														x	x			
Arcadia		x										x		x	x			
Avalon						x				x				x				
Azusa		x									x			x		x		
Bell																		
Beverly Hills	x										x			x	x			
Burbank	x					x								x		x		
Claremont				x							x			x				
Compton	x										x			x				
Covina	x	x									x			x		x		
Culver City	x										x			x				
El Monte	x	x									x			x				
El Segundo		x									x			x				
Gardena		x												x				
Glendale	x										x			x		x		
Glendora		x					x				x			x	x			
Hawthorne		x									x			x				
Hermosa Beach	x													x				
Huntington Park		x				x								x			x	
Inglewood											x			x				
La Verne		x		x							x			x				
Long Beach							x				x			x	x			
Los Angeles	x										x			x	x			
Lynwood											x	x		x				
Manhattan Beach											x			x				
Maywood														x				
Monrovia	x	x												x	x			
Montebello	x													x				
Monterey Park		x		x							x			x		x		
Palos Verdes Estates																		
Pasadena		x									x	x		x	x			
Pomona	x										x			x		x	x	
Redondo Beach														x		x		
San Fernando														x				
San Gabriel		x												x				
San Marino		x												x	x			x
Santa Monica														x				
Sierra Madre		x												x	x			
Signal Hill		x												x				
South Gate		x			x		x				x			x				
South Pasadena														x				
Torrance											[a] [c]							
Vernon																		
West Covina														x				
Whittier												x		x		x		
Total number	12	18		3	1	3	3	[a]		1	22	4		41	10	8	2	1

NOTES:

[a] All cities provide outside fire protection under mutual aid agreements.

[b] Huntington Park maintains the grounds for the library and health department; the county uses Pomona's incinerator; and San Marino furnishes the site for the courthouse.

[c] Some cities make charges for certain recreational facilities; however, data are not available on this point.

SOURCE: Questionnaires completed by officials of the various cities.

reported that they serve other than city residents, and 10 reported that they charge for such service. No charge is made, however, if the outside borrower lives in a city which has a reciprocal library agreement with the city supplying the library service. Outside use appears to comprise from 5 to 15 percent of the total load of these city libraries.

Other. Only two other city services are charged for, and these are quite minor. The county is charged by Huntington Park for ground maintenance for buildings housing the county library and health department branches, and by Pomona for the use of the city incinerator.

City Services Provided Without Charge

General Government. Azusa, Glendora, and La Verne made no charge for five offices they placed at the county's disposal. The free space thus provided included some utilities, such as telephone and light. As Table 9 shows, 15 other cities provided a total of 21 part-time offices for various county departments.

Most of this space was used by the county assessor's staff during the assessment period, while some was used for well-baby clinics, township courts, voter registration and similar intermittent functions. No estimate of the value of these free city services is available.

Protection to Persons and Property. Although the cities are party to mutual aid agreements with the county, pursuant to which city police are available for emergency-type duty outside city jurisdictions, outside service appears to be very uncommon. Occasional police service is provided outside city limits by the Cities of Claremont, La Verne, and Monterey Park, but it warrants only small mention.

Three cities reported that they hold county prisoners on a temporary basis and make no charge for this service. However, they stated that this service is returned by the county in the form of city prisoners held in county jails. These cities were Avalon, Burbank, and Huntington Park. Avalon had very few cases; Huntington Park reported at least one case for each court day; and Burbank reported 100 cases during 1951 from all jurisdictions, including other cities, the county, the State and the Federal Government.

The fire departments of all 45 cities are available for outside responses on a mutual aid basis. Thirty cities have written agreements with the county, while 15 have informal understandings. There are also a number of mutual aid agreements between cities.

Although all cities have some type of mutual aid system on fire fighting, only a few experienced significant amounts of outside responses to fires, judging by the records for the year 1951. During that year 30 cities had four or less outside runs, while Los Angeles (with 1,501 outside runs) was the only city reporting more than 54 responses outside its boundaries. With the exception of Culver City, where 54 runs constituted 13 percent of total responses to calls, no city had outside responses amounting to more than 8 percent of the total number of responses for the year. The data on outside responses follows:

Number of cities	*Outside runs as a percentage of total runs in 1951*
11	0
19	1 to 3
3	4 to 6
3	7 to 13
9	No data available
45	

More detailed data for those cities showing outside responses which amounted to more than 3 percent of total runs is shown below:

City	*Total runs 1951*	*Outside runs*	*Outside runs as a percentage of total*
Azusa	99	7	7
Claremont	51	4	8
Culver City	420	54	13
Los Angeles	23,591	1,501	6
Monrovia	173	9	5

As with other city services provided beyond city limits, the data is clouded by the fact that an unknown proportion of the outside runs involved neighboring city territories rather than unincorporated areas, except in the case of Azusa. The existence of considerable intercity mutual aid on fire fighting is in the following statement from the City of Los Angeles.

> "The Fire Department of the City of Los Angeles, because of the peculiar geographical setup of the city, does respond frequently outside of the city limit. * * * This is not a one-way track. The Cities of Beverly Hills, Glendale, Burbank, Culver City, Inglewood, Huntington Park, the County of Los Angeles, and others repeatedly cross city boundaries and aid in the extinguishment of fires in the City of Los Angeles."[9]

When it is recalled that the outside fire fighting performed by the cities, as summarized above, is part of the mutual aid system, it seems reasonable to suppose that city runs are "repaid" by an offsetting number of runs made by the county, fire protection districts, or other cities. This might not be true in any one year, but there is probably a tendency for this to happen over a period of years. The county fire warden stated that "Responses are made to all borderline fires in cities * * *" (and) "to areas designated as initial action zones * * * along the boundaries of Los Angeles, Pasadena, Glendale, Burbank, * * * (and) Whittier."[10] The extent of county operations under the mutual aid arrangements is discussed in a later section of this report dealing with county functions and services.

While the amount of outside fire fighting performed by cities is of general interest, it is assumed here that no inequities to city taxpayers are created, due to the compensating fire fighting services provided inside cities by other agencies. Only in the case of Culver City, which appears to have an inordinately high percentage of outside runs under mutual aid, could it reasonably be assumed that adequate offsetting service does not take place.

Health and Sanitation. Only one very minor item can be considered to relate to this classification. The City of Avalon provides a limited number of free ambulance runs to the county each year. In no year have there been more than five runs.

Utilities. Arcadia and Lynwood provide sewage disposal to a total of about 100 connections, without charge. To an extent not specified, Pasadena provides sewer service to a sanitation district on a reciprocal service basis. Free water is provided to the County Health Center in Whittier by that city.

Recreation. Of all city services received by noncity residents, the use of city recreation facilities appears to involve the most people and the most cities. It is necessary to emphasize, however, that the figures purporting to show the amount of outside use, like those relating to library services, reflect use by residents of neighboring cities as well as adjacent unincorporated areas. Three of the 45 cities—Palos Verdes Estates,

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[9] Statement submitted to the committee with respect to the operations of the Los Angeles City Fire Department.

[10] Statement submitted to the committee by the Los Angeles County Firewarden.

West Covina and Vernon—report no outside use of city recreational facilities. Two other cities—San Marino and Bell—were unable to state the extent of any outside use. The remaining 40 cities reported varying amounts of outside use. The following table indicates the percentages estimated by 37 cities as representing the use of their recreational facilities by noncity residents.

Number of cities	*Extent of outside use, expressed as a percentage of total use*
3	0 to 5
3	6 to 10
12	11 to 30
9	31 to 50
10	Over 50
37	

Three other cities reported as follows: Glendora, "Considerable"; El Segundo, "Extensively"; Manhattan Beach, "More than average." The latter two are beach cities. The cities which reported outside use in excess of 50 percent of their recreational facilities were:

Avalon	60 percent
Azusa	55 percent
Beverly Hills	50 to 80 percent
Burbank	10 to 60 percent
El Monte	90 percent
Monrovia	15 to 85 percent
Montebello	20 to 85 percent
Pasadena	75 percent
Santa Monica	15 to 90 percent
Signal Hill	Over 50 percent

For all these cities except Avalon, Azusa, and El Monte, however, it may be assumed that a significantly large amount of outside use is occasioned by persons from neighboring incorporated cities, due to their close proximity to other cities. Los Angeles and Long Beach, two of the three largest cities in the county, reported outside use of 21 and 20 percent respectively.

For a few specialized city facilities, such as swimming pools and golf courses, charges are assessed upon all users, but these charges are usually the same for residents and nonresidents. Thus, even where such charges are imposed, city residents are still bearing the capital costs involved. No detailed information on charges was available, but it is safe to say that the bulk of all city recreational facilities were made freely available to all who wished to use them.

It is difficult to evaluate the net result of the above information on the outside use of city recreational facilities. However, it does seem apparent that fairly significant numbers of persons from the unincorporated areas are enjoying recreational and park facilities on a free basis in the case of perhaps half the cities in Los Angeles County and that they account for possibly as much as 30 percent of the total use of such facilities.

Library. Eight cities experienced considerable use of their libraries by noncity residents but made no charge for such library service. Four cities reported significant use by residents of outside areas. These are shown as follows:

		Nonresident borrowers	
City	*Total number of borrowers 1950-51*	*Number*	*Percentage of total number of borrowers*
Covina	Unknown	Unknown	20 (estimated)
Glendale	37,000	3,500	9
Pomona	17,860	2,304	13
Whittier	17,656	Unknown	Over 5 (estimated)

The location of these four cities is such that a large proportion of the outside borrowers probably came from unincorporated territory rather than from the surrounding cities. However, the total "free ride" resulting from library services freely provided by cities can hardly be described as significantly large. The remaining four cities reported less than 5 percent use by outside borrowers.

COUNTY SERVICES

County Government Organization

Los Angeles County adopted a charter in 1913. The charter provides for the following elected officials: members of the board of supervisors, the sheriff, the district attorney, the assessor, and certain township officers including the justices of the peace, municipal court judges and superior court judges.

Appointive officers prescribed by the charter are:

Auditor
Board of education
Board of law library trustees
Civil service commission
Coroner
County clerk
County counsel
County forester and fire warden
Fish and game garden
Health officer
Horticultural commissioner
License collector
Live stock inspector
Probation committee
Probation officer
Public administrator
Public defender
Purchasing agent
Recorder
Registrar of voters
Road commissioner
Superintendent of charities
Superintendent of schools
Surveyor
Tax collector
Treasurer

All officers of Los Angeles County "shall have the powers and perform the duties prescribed by general law, the charter and ordinances not inconsistent with the general law or the charter."[11]

The organization of the Los Angeles County government is shown in Figure 15.

County Expenditures and Revenues

The expenditures and revenues of Los Angeles County are summarized in Figure 16. In 1951-52 the total final county budget amounted to $321,401,863. This total was distributed between the county and special districts in the following manner, as shown by the Los Angeles County budget for fiscal 1952:

Budget	*Total expenditures*	*Percent of total*	*Amount raised by property taxes*	*Percent of total*	*Percentage of property taxes to total expenditures*
County	$289,305,525	90	$98,915,830	87	35
Special districts	32,096,338	10	15,402,742	13	49
Total	$321,401,863	100	$114,318,572	100	36

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[11] Administrative Code of the County of Los Angeles, Article III, Section 30.

FIGURE 15
LOS ANGELES COUNTY
GOVERNMENT ORGANIZATION AS OF MARCH, 1952

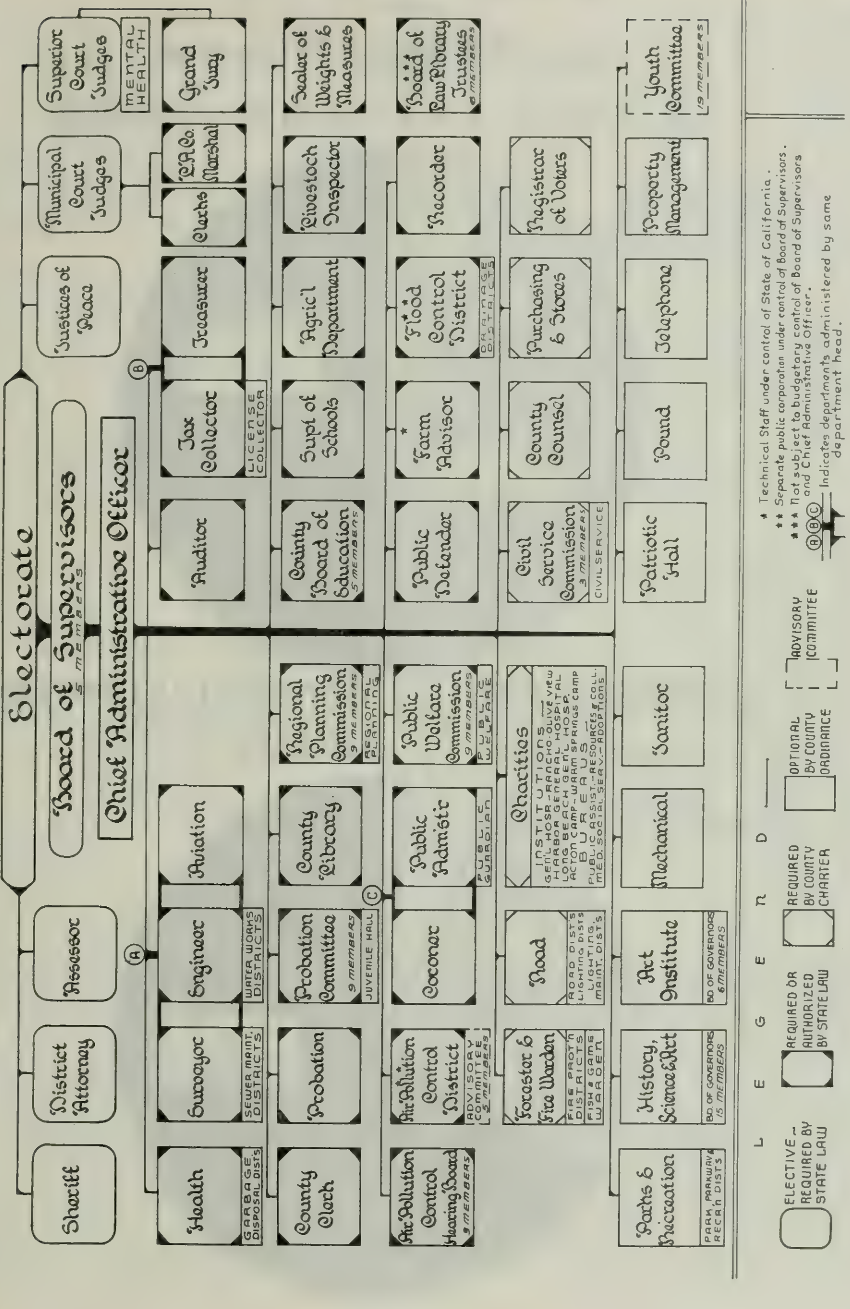
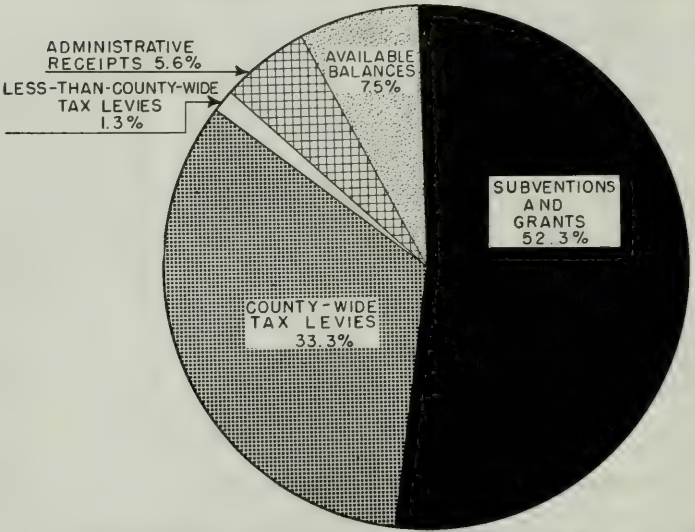


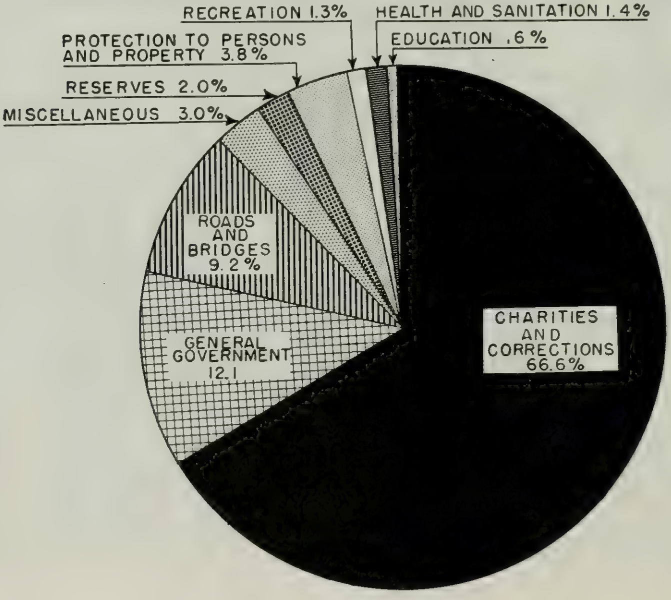
FIGURE 16

LOS ANGELES COUNTY
DISTRIBUTION OF REVENUES AND EXPENDITURES
1951-52

REVENUES BY GENERAL SOURCE



EXPENDITURES BY GENERAL FUNCTION



County expenditures constituted 90 percent of the total expenditures approved by the board of supervisors. In per capita terms, these expenditures amounted to $69.68, based on the 1950 population of the county and to $64.77 based on the population in 1952. This level of expenditure is not high as compared with that of other counties. Alameda County, possibly the only one which begins to approach Los Angeles County in size and complexity of its operations, showed per capita outlays of $64.14 for fiscal 1952, while Kern, Napa and Sacramento Counties exceeded Los Angeles with per capita expenditures of $104.98, $72.75 and $73.12 respectively.

The expenditures of county departments amounted to $289,305,525 in 1952. These expenditures are classified by general function in Table 10. The first column reproduces the expenditure amounts shown in the final budget. The third column presents an arbitrary reclassification of a number of budget items, undertaken in this report to produce a functional summary for Los Angeles County which is comparable to that shown for the other counties being studied. An examination of the adjusted expenditure amounts indicates that Los Angeles County resembles most other counties in the functional distribution of its operations. Charities and corrections in the amount of $192,686,070 constitute 66.6 percent of the budget for fiscal 1952. General government ranks second with an expenditure of $35,095,999 or 12.1 percent of the budget while roads and bridges account for $26,598,642 or 9.2 percent. The three largest remaining items are protection to persons and property (3.8 percent); miscellaneous (3.0 percent); and reserve funds (2.0 percent). The most controversial county services are included in the first five categories of Table 10, and altogether they comprise less than 28 percent of the total budget.

TABLE 10

LOS ANGELES COUNTY
COUNTY EXPENDITURES BY GENERAL FUNCTION
1951-52

	Expenditures			
General function	*Budget amounts*	*Percent of total*	*Adjusted budget amounts*[a]	*Percent of total*
General government	$33,682,115	11.6	$35,095,999	12.1
Protection to persons and property	4,168,679	1.4	10,867,999	3.8
Health and sanitation	3,899,666	1.4	3,899,666	1.4
Roads and bridges	26,598,642	9.2	26,598,642	9.2
Recreation	3,862,060	1.3	3,862,060	1.3
Charities and corrections	192,686,070	66.6	192,686,070	66.6
Education	1,669,119	0.6	1,669,119	0.6
Interest	85,000	[b]	85,000	[b]
Reserve funds	5,813,960	2.0	5,813,960	2.0
Miscellaneous	14,081,914	4.9	8,727,010	3.0
Estimated delinquency	2,758,300	1.0	---	--
Total	$289,305,525	100.0	$289,305,525	100.0

NOTES:

[a] Adjusted to a standard functional classification adopted in this study for purposes of making intercounty comparisons.

[b] Less than one-tenth of 1 percent.

SOURCE: "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County.

The gross figure of $289,305,525 does not, however, represent the actual cost of county functions and services provided to the residents of Los Angeles County. Certain revenues accrue to various county departments as a consequence of their performance of various direct services for individuals or other governmental units, and these may properly be deducted from budgeted expenditures to arrive at a figure which reflects the real cost of county services not paid for by the immediate beneficiaries. For fiscal 1952 a total of $10,318,782 is shown as direct revenues which are deductible from total expenditures. Of this amount $8,744,393 derived from fees and charges paid by individuals and $1,574,389 derived from payments made by other governmental units. Deducting these related revenues results in a "net" expenditure of $278,986,743 for all county departments.

The funds available to meet county expenditures as set forth in the budget were derived from four sources: available balances; property tax revenues; administrative receipts; and subventions and grants. Table 11 below shows the amounts available for meeting budgeted expenditures from these four categories.

TABLE 11

LOS ANGELES COUNTY
COUNTY REVENUES AND BALANCES
1951-52

Source	*Amount*	*Percent of total*
Property taxes	$99,991,830	34.6
Basic county-wide ad valorem tax	96,398,444	33.3
Road tax, outside cities	317,099	0.1
Library tax, outside cities or districts having libraries	1,061,056	0.4
Levies of previous years	450,000	0.2
Mandatory special taxes	626,000	0.2
Balancing entry	1,139,231[a]	0.4
Subventions and grants	151,352,163	52.3
State	92,453,990	32.0
Federal	58,898,173	20.3
Administrative receipts	16,166,327	5.6
Licenses and permits	2,295,720	0.8
Fines and penalties	1,706,927	0.6
Privileges	803,175	0.3
Fees and commissions	7,052,394[b]	2.4
Rents, interest and sales	1,175,000	0.4
Special services	2,695,258	0.9
Intergovernmental services	437,853	0.2
Available balances	21,795,205	7.5
Total	$289,305,525	100.0

NOTES:

[a] This item is not actual revenue from tax levies, but a bookkeeping balancing item made necessary because of a budget overestimate of other revenue sources. The deficiency is worked out by holding expenditures below the amounts shown in the final budget, almost all of the reduction occurring in highways and bridges.

[b] Includes miscellaneous revenues, some of which are payments for intergovernmental and special services.

SOURCE: "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County.

Available balances supplied 7.5 percent of the necessary funds for fiscal 1952. Administrative receipts accounted for 5.6 percent of county revenues. Subventions and grants provided 52.3 percent of Los Angeles County revenues during fiscal 1952 and they constituted by far the most important revenue source. Two-fifths of the moneys in this category originated at the federal level, and amounted to 20.3 percent of all county revenues. The remaining three-fifths, constituting 32 percent of all county revenues, was received from state subventions and grants. Among these state subventions those received from taxes on motor vehicles and fuels and from the licensing of liquor establishments can be analyzed as to local taxpayer source with reasonable precision. These particular subventions are shown in the final budget for 1951-52 as follows:

Subvention	*Amount*	*County fund to which allocated*
Motor vehicle fuel and motor vehicle fuel tax fund	$16,676,667	Motor vehicle
Motor vehicle license fee fund (in-lieu tax)	9,300,000	General
Alcoholic beverage license fees	300,000	General
Total	$26,276,667	

The in-lieu moneys and the alcoholic beverage subventions are placed in the county general fund, whereas the other subventions are allocated to the motor vehicle fund. If the 1950 population inside and outside cities is accepted as a basis for estimating the source of the subventions deriving from state taxes on motor vehicles and fuels, Los Angeles County city residents, or 70 percent of the total county population, contributed some $20,522,000, while the residents of all the unincorporated areas contributed about $5,455,000. The $300,000 subvention from license fees collected under the Alcoholic Beverage Control Act is based on state collections in unincorporated areas only and may therefore be considered as paid primarily by noncity residents.

Property taxes provided slightly more than one-third of the budget requirements. The estimated collections of almost 100 million dollars amounted to 34.6 percent of total county revenues. The sources of property tax revenues are easily determined by reference to the distribution of assessed valuations. According to the earlier analysis of assessed valuations in Los Angeles County, 81.4 percent of the valuations for the 1951-52 year were located within the limits of incorporated cities. It may therefore be assumed that city residents contributed the same proportion of ad valorem revenues, or a total of $78,468,333, toward financing the county budget while the remaining $17,930,111 was collected from property owners in the unincorporated areas.

Road taxes were levied upon property in the five road districts, which included all the territory outside incorporated municipalities. The $317,099 collected from property taxes for road purposes thus contained no tax payment by city property owners. Receipts from road taxes were placed in five funds, one for each supervisorial road district.

Similarly property taxes for libraries were levied upon the assessed valuation of property located outside cities or special districts having libraries of their own, or contracting for county library services. There were 24 such cities and two such districts, with a combined valuation of $4,302,706,820, leaving $1,484,732,655 of the county tax base subject to the library tax. Valuations in the unincorporated portions of the two library districts amounted to $34,417,040, or 2.3 percent of the combined valuation. It may therefore be calculated that about $1,036.700 of the library tax collections were derived from levies on property in cities, while $24,400 derived from levies on property outside cities. All library tax revenues were placed in the Public Library Fund.

From the foregoing analysis it is clear that 42.9 percent of all revenue sources can be traced to taxpayer groups located inside or outside cities. The remaining 57.1 percent of all revenues derived from sources so mixed and indirect as to preclude any analysis as to origin. However, property taxes for general county, road, and library purposes, motor vehicle and fuel subventions and liquor license subventions are directly traceable to particular taxpayers and licensees. The relative importance of these items, the funds to which they are allocated and the estimated shares contributed by city and noncity residents are shown in Table 12.

This table shows that, of the $124,053,266 in revenues subject to analysis by taxpayer location and amounting to 42.9 percent of total county revenues, slightly over four-fifths can be designated as paid by city residents. The remaining one-fifth can be traced to residents of unincorporated areas. The city share is very close to the 81.4 percent which the assessed valuations inside cities constitute of the total county property tax base. The amount of traceable revenues paid by taxpayers inside cities comes to $100,027,000 or 80.6 percent of the total while the amount which may be estimated as paid by taxpayers outside cities amounts to $24,026,600, or 19.4 percent of all traceable revenues.

Table 13 shows the estimated amounts contributed to each county fund by city and noncity residents, so far as these contributions are traceable. Traceable contributions for city residents ranged from 14.7 cents per general fund dollar to 81.4 cents per capital outlay fund dollar. Traceable contributions from noncity residents ranged from 1.8 cents per public library fund dollar to 18.6 cents per dollar of the accumulative capital outlay fund.

Services Provided by Los Angeles County

The present study of Los Angeles County and the services it provides, as well as the analysis of other counties presented in the foregoing chapters of this report, is oriented toward an examination both of the types and the ''level'' of county service. It is alleged that counties have provided certain services in particular areas which happen to be densely populated, and hence urban in character, on a ''level'' which approaches the standards of such services as provided within incorporated cities. Hence counties have been providing ''municipal-type services'' or services at a ''municipal level'' of performance. The following sections of this chapter examine certain particular county services with a view of determining whether different types or levels of these services are provided in different areas of the county. The sections are listed by general budget category, but only particular services involved with these questions are analyzed in any detail.

TABLE 12

LOS ANGELES COUNTY
TRACEABLE COUNTY REVENUE ITEMS, FUND TO WHICH ALLOCATED, AND AMOUNTS ESTIMATED AS PAID BY CITY AND NONCITY RESIDENTS
1951-52

Traceable revenue items and funds to which allocated	*Traceable current revenues*	*Traceable revenues as a percentage of:*			*Traceable revenues estimated as paid by city residents*		*Traceable revenues estimated as paid by noncity residents*	
		Total revenues and balances	*Revenue item*	*Current fund requirement*	*Amount*[a]	*Percent of fund requirement*	*Amount*[a]	*Percent of fund requirement*
County-wide property taxes								
General fund	$23,220,015	8.0	24.1	13.0	$18,901,100	10.6	$4,318,900	2.4
Salary fund	72,265,676	25.0	75.0	89.3	58,824,200	72.7	13,441,400	16.6
Subtotal	$95,485,691	33.0	99.1	36.8	$77,725,300	29.9	$17,760,300	6.9
Accumulative capital outlay fund	298,416	0.1	0.3	100.0	242,900	81.4	55,500	18.6
Communicable disease hospital interest and sinking fund	361,375	0.1	0.4	100.0	294,200	81.4	67,200	18.6
Juvenile hall center interest and sinking fund	252,962	0.1	0.2	100.0	205,900	81.4	47,100	18.6
Total—County-wide property taxes	$96,398,444	33.3	100.0	37.0	$78,468,300	30.1	$17,930,100	6.9
Less-than-county-wide property taxes								
Road taxes—to district funds	$317,099	0.1	100.0	93.6	---	---	$317,099	93.6
Library tax—to public library fund	1,061,056	0.4	100.0	77.6	$1,036,700[b]	75.8	24,400	1.8
Total—Less-than-county-wide property taxes	$1,378,155	0.5			$1,036,700		$341,499	
Subventions								
Motor vehicle fund	$16,767,667	5.8	100.0	66.0	$13,175,000	52.1	$3,502,000	13.9
General fund (in lieu tax)	9,300,000	3.2	100.0	5.2	7,347,000	4.1	1,953,000	1.1
General fund (alcoholic beverage control licenses)	300,000	0.1	100.0	0.2	---	---	300,000	0.2
Total—Subventions	$26,276,667	9.1	100.0	12.9	$20,522,000	10.1	$5,755,000	2.8
Total traceable revenues	$124,053,226	42.9	100.0	43.2	$100,027,000	34.8	$24,026,599	8.4
Percent of traceable revenues	100.0				80.6		19.4	

NOTES:

[a] Allocations credited to city and noncity residents from ad valorem taxes were computed on the basis that 81.4 percent of the 1951-52 assessed valuations was inside incorporated cities; from subventions, on the basis that 79 percent of the 1950 population was inside incorporated cities. The alcoholic beverage control subvention is entirely credited to unincorporated areas. Totals may not add due to rounding.

[b] The allocation credited to city residents is that of the 21 cities subject to the library tax.

SOURCE: "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County.

TABLE 13

LOS ANGELES COUNTY
TOTAL REQUIREMENTS AND ESTIMATED TRACEABLE AMOUNTS OF SELECTED FUNDS
1951-52

Fund	*Total current fund requirements*	*Estimated traceable amounts*			*Estimated traceable amounts in cents per fund dollar*		
		Total	*Credited to city residents*	*Credited to noncity residents*	*Total*	*Credited to city residents*	*Credited to noncity residents*
General fund	$178,620,041	$32,820,000	$26,248,100	$6,571,900	18.4	14.7	3.7
Salary fund	80,934,671	72,265,600	58,824,200	13,441,400	89.3	72.7	16.6
Accumulative capital outlay fund	298,416	298,400	242,900	55,500	100.0	81.4	18.6
Public library fund	1,367,764	1,061,100	1,036,700	24,400	77.6	75.8	1.8
Motor vehicle fund	25,271,300	16,677,400	13,175,000	3,502,400	66.0	52.1	13.9

SOURCE: "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County, and data in Table 11.

General Government Services—Over 30 different services are provided under the general government category of county service in Los Angeles County. For purposes of this report, seven additional services have been transferred from the "miscellaneous" budget heading to the "general government" classification.[12] These seven include telephone service; mechanical service; judgments and damages; workmen's compensation; employees' retirement; exploitation and exposition, and the county fair grounds. Gross expenditures for these services amounted to $35,095,999 in fiscal 1952. Revenues directely associated with these services were budgeted at $3,822,677, making the net cost of these services $31,273,322. All expenditures for general government activities were made from the general and salary funds of the county.

Expenditures for general government amounted to 12.1 percent of gross and 11.2 percent of net budgeted expenditures. On a net basis they amounted to $7.53 per capita, or almost 20 percent more than the per capita figure of $6.36 for all cities. This may be explained by the fact that county expenditures for general government typically exceed those made by cities because of the relatively heavier responsibilities in the administration of justice and election proceedings borne by the counties.

With few exceptions the general government operations of Los Angeles County were county-wide in nature or were directly necessary to the performance of county-wide services. In the latter case they become items of overhead and their costs should be prorated among the operations they support. As an example, the budget lists an expenditure of $612,758 for purchasing and stores, the county's central purchasing and warehousing operation. This outlay obviously should be charged to the various county departments for which the function is performed, so that their correct costs could be shown. The omission of such prorated costs does not, however, seriously affect the analysis of certain county services, because the inclusion of such overhead amounts would raise the costs of specific operations by only nominal amounts and, furthermore, would raise almost all operations about the same percentage. Thus the *relative* costs would remain just about the same. It should be noted, however, that the absolute dollar costs of certain less-than-county-wide services, discussed in detail in subsequent sections, are somewhat understated by the omission of this prorated overhead.

General government items such as the tax collector, the registrar of voters, the municipal courts, the justice courts, the superior courts, the grand jury and the county clerk illustrate county-wide types of service, performed throughout the county on the basis of need, without regard to intra-county jurisdictional boundaries. These, by common consent and understanding, raise no problems of inequity with respect to county services or their financing.

Figure 17 shows the location of county branch civic centers in 1949. Few changes have been made in the 50 branch centers since then. The map shows that civic centers for administering general governmental services were distributed throughout the county in rough proportion to population densities. Many were inside incorporated cities and were located without regard to whether an area was incorporated or unincorporated.[13]

With respect to several items in the general government budget category, opinion is divided as to whether they do indeed "benefit" all county residents. These are the board of supervisors, the surveyor, the county engineer, the aviation department, the building and safety division and the regional planning commission.

THE BOARD OF SUPERVISORS. For fiscal 1952 the final budget lists an expenditure of $828,574 for the Board of Supervisors of Los Angeles County. The breakdown of this total expenditure, by fund, is shown below.

Fund	*Budgeted expenditures*	*Percentage*
General	$247,546	29.9
Salary	581,028	70.1
Total	$828,574	100.0

The charter of Los Angeles County stipulates (Article II, Section 4) that the board shall consist of five members, as in general law counties. The five supervisorial districts of the county are shown in Figure 18. It should be noted that every supervisorial district contains incorporated cities. Supervisorial Districts Two and Three have almost no unincorporated territory; District Four appears to be about half incorporated; and Districts One and Five consist mostly of unincorporated area. In terms of population distribution, however, city residents are clearly in the majority in every district except in Supervisorial District One in the eastern part of the county.

The powers of the board of supervisors which are especially relevant to this study are set forth in the charter as follows:

> "Article III
>
> "General Powers of the Board of Supervisors
>
> "Sec. 10. The Board of Supervisors shall have all the jurisdiction and power which now or which may hereafter be granted by the Constitution and laws of the State of California or by this charter.[14]
>
> "Sec. 11. It shall be the duty of the Board of Supervisors:
>
> "(1) to appoint all county officers other than elective officers, and all officers, assistants, deputies, clerks, attaches, and employees whose appointment is not provided for by this Charter. * * *

---

[12] See Appendix E, Table 2, for a detailed list of general government services.

[13] It is of interest to note that no branches of the superior court or branch office of the county clerk is situated in unincorporated areas.

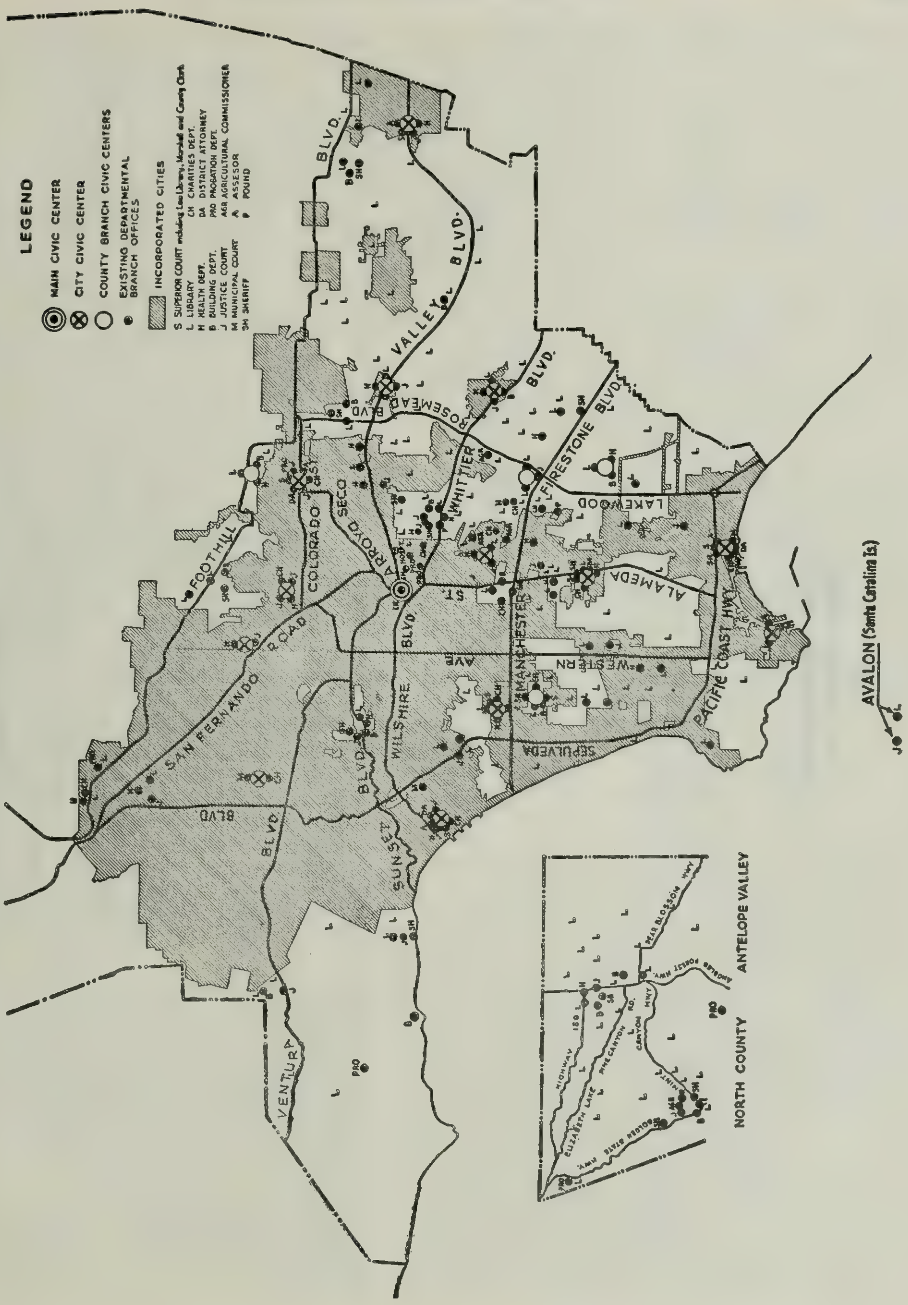
[14] As stated in a footnote, this section embraces the power generally to make and enforce, within the limits of their county, all such local, police, sanitary and other regulations as are not in conflict with general laws. (Political Code (1920) sec. 4041, (4), (31), (37) and (41).)

FIGURE 17

LOS ANGELES COUNTY

EXISTING BRANCH CIVIC CENTERS AND DEPARTMENTAL BRANCH OFFICES

1949



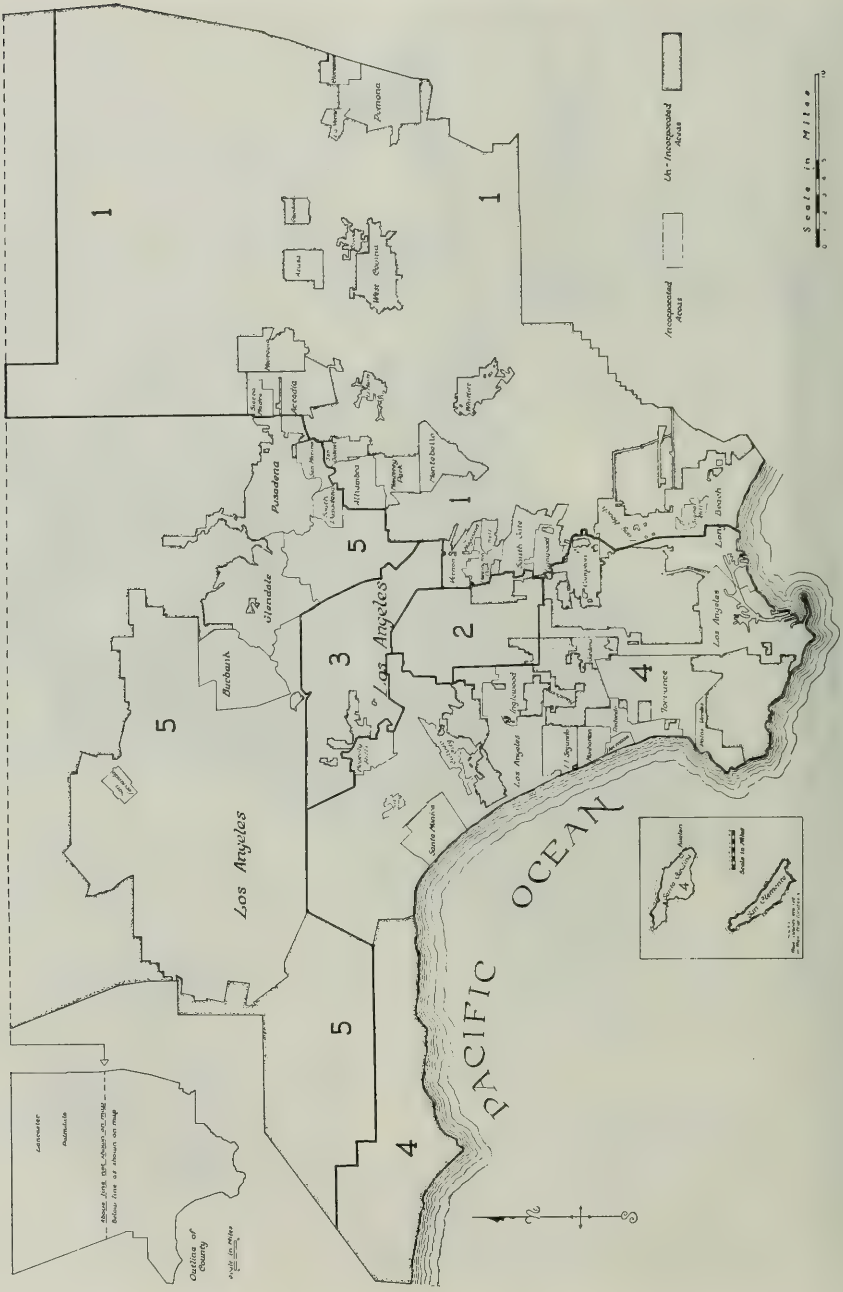


FIGURE 18
LOS ANGELES COUNTY
SUPERVISORIAL DISTRICTS

> "(4) to provide, by ordinance, for the creation of offices other than those required by the Constitution and laws of the State, and for the appointment of persons to fill the same, and to fix their compensation. * * *
>
> "(6) to provide, publish and enforce, a complete code of rules, not inconsistent with general laws or this Charter, prescribing in detail the duties, and the systems of office and institutional management, accounts and reports for each of the offices, institutions and departments of the county."

Section 10, as the footnote indicates, recognizes that the board of supervisors may exercise both the powers available to general law counties as well as other powers not in conflict with the general law and granted in the charter. Paragraph (6) of Section 11 directs the board of supervisors to prescribe in detail the duties of any county department. However, certain aspects of the board's functions can affect only the unincorporated areas, since county supervisors cannot legislate upon the *municipal affairs* of incorporated cities.

It is not possible to calculate the exact amount of the expenditures of the board of supervisors which may be directly charged to legislative and administrative duties affecting only the unincorporated areas (rural or urban) of the county. This would require a detailed study of how supervisors allocate their time between county-wide and local matters. So far as expenditures for the board are concerned, it is unlikely that the total amount budgeted for the supervisors would be any less than it is now, even if they were to spend all of their time on matters of county-wide concern. There is, unquestionably, a minimum expenditure involved in the performance of supervisorial duties regardless of the amount of time and effort devoted to various areas in the county. However, in the absence of analyses of work loads, staff productivity and the administrative organization of the board of supervisors and its staff, assignments of the cost of the board to problems relating to specific types of county areas cannot be made with any degree of authority. It appears that this service should be considered as county-wide in nature, imposing no unfair tax charges upon residents of one type of area as against another.

THE COUNTY ENGINEER AND SURVEYOR. Four items in the budget fall in this category of general government expenditure. They are the county surveyeor, the county engineer, the aviation department and the building and safety division. The amounts budgeted for each division are shown below. The gross amount shown is, however, reduced by revenues from inspection fees; charges to individuals and other government units; and airport incomes so that the net county expenditure amounts to $1,714,289.

Division	*Amount budgeted, 1951-52*
Surveyor	$1,759,373
Engineer	970,994
Aviation department	62,219
Building and safety	1,037,628
Total	$3,830,214

The department of surveyor, originated by state law in 1850, and the department of county engineer, established by county ordinance in 1937, are operated jointly as the department of county engineer and surveyor. The department has eight divisions: architectural, aviation, building and safety, construction, industrial waste, mapping, sanitation and survey. The variety of the duties performed by the department is shown in Figure 19. This figure also shows how these duties have grown since 1850.

Among the eight divisions of this department, the aviation department and the building and safety division are listed separately under the general government budget category. These two subdivisions of the county engineer and surveyor department are discussed first in the following paragraphs, followed by an examination of the other activities of the department.

THE AVIATION DEPARTMENT. The aviation department operated four airports in 1951-52, three of which were owned by the county and one of which was leased from the State. One airport, War Eagle Field, was leased to the State of California; a second, Victory Airfield, was leased to a private pest control company; and a third, Palmdale, was operated as a public airport until its sale in June, 1952, to the Federal Government. The fourth airport, Grey Butte, is an unattended emergency landing field.

In 1951-52 the county incurred no net cost in operating this division. The gross budgeted expenditures by fund are shown below against the net expenditures after credit for airport charges collected.

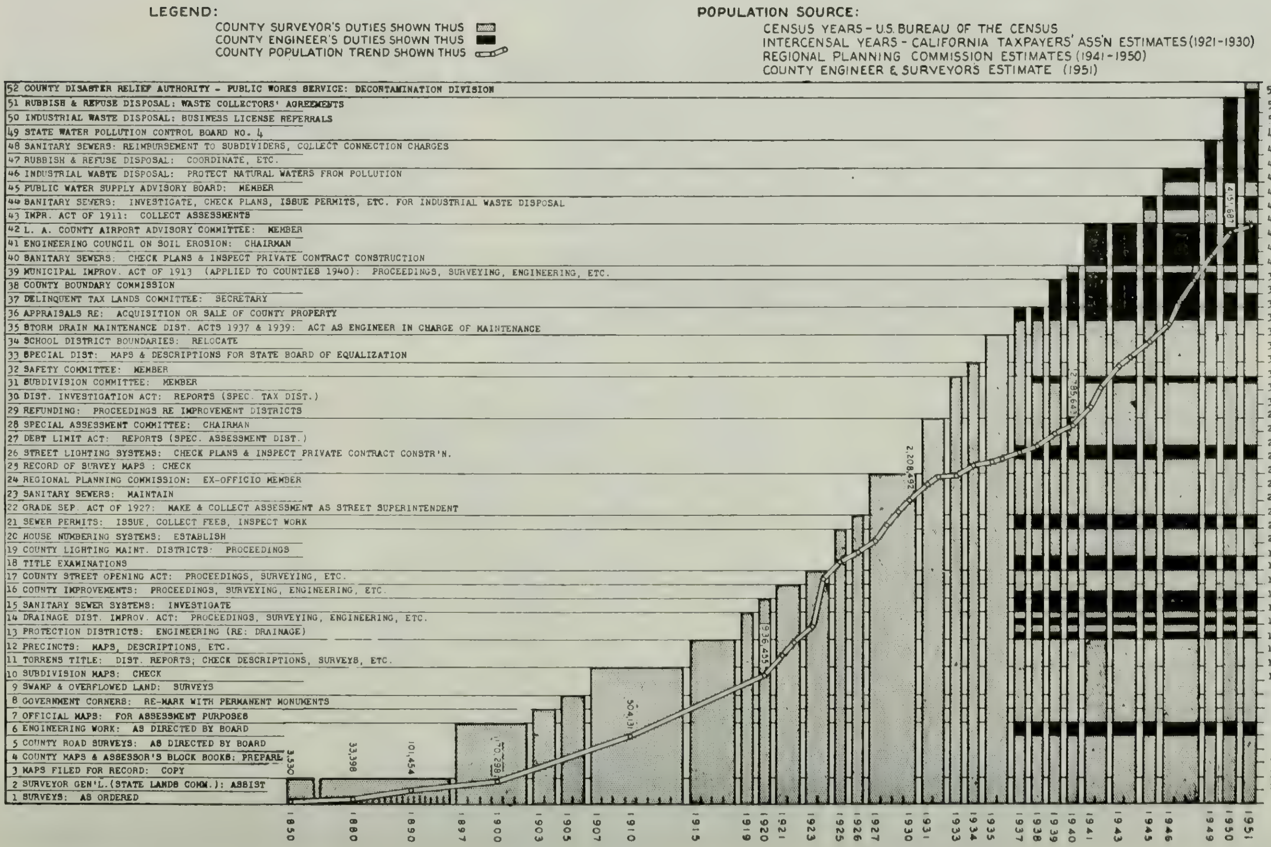
Fund	*Budgeted expenditures*	*Net expenditures*
General	$35,543	$32,849 (credit)
Salary	26,676	26,676
Total	$62,219	$6,173 (credit)

While total outlays for this division will probably fall sharply as a result of the discontinuing of operations at Palmdale, it is likely that the smaller amount of expenditures will still be recovered from operational revenues. In fact the cessation of county aviation activities at Palmdale practically removes the county from direct airport operation and does away with the need for determining whether any service inequities arise in the aviation department. So far as the 1951-52 budget figures are concerned (which still reflect the Palmdale operations), no problem of subsidization exists since there is a credit balance of more than $6,000 in excess of the department's costs.

THE BUILDING AND SAFETY DIVISION. The building and safety division is engaged in building, electrical and plumbing inspections in the unincorporated areas. It also performs such inspections on a contract basis for the Cities of Avalon, Azusa, Claremont, Glendora, La Verne and Palos Verdes Estates. This division pro-

FIGURE 19

LOS ANGELES COUNTY
GROWTH OF THE DUTIES OF COUNTY ENGINEER AND SURVEYOR
1850 to 1951



duced a net revenue over budgeted expenditures in 1951-52, as the following figures show:

Fund	*Budgeted expenditures*	*Net expenditures*
General	$128,044	$1,221,956 (credit)
Salary	909,584	909,584
Total	$1,037,628	$312,372 (credit)

If the experience of past years holds true with respect to the operations of this division in fiscal 1952, there is every reason to believe that the costs involved in the inspections performed in the unincorporated areas, as well as those in the contract cities, will be more than recovered through the fees charged. For fiscal 1951 the division reported the following financial operations.

	Unincorporated areas	*Six cities*	*Total*
Revenues	$1,721,336	$46,842	$1,768,178
Expenditures	883,878	24,983	908,861
Gross surplus	$837,458	$21,859	$859,317
Estimated overhead	133,000	4,000	137,000
Net surplus	$704,458	$17,859	$722,317

Thus, even after deducting overhead costs attributable to the division of building and safety, a significant surplus remained. The surplus estimated in the 1951-52 budget stands at $312,372, which if anything, would seem to be a conservative figure. Thus there is no reason to suppose that any serious problems of inequity with respect to the relative amounts of support contributed by city and unincorporated area taxpayers for this function exist in the case of this service.

It is important to note here the nature of the inspection activities performed by the county under contract with the six cities mentioned above. Each city agrees to adopt the building, electrical and plumbing codes of the County of Los Angeles, including the schedule of fees. Each city further agrees to turn over the full amount of the fees to the county and to provide necessary forms, desk space and telephone for the use of the county inspector. The county agrees to perform building, electrical and plumbing inspections required by the three codes; to check plans when necessary; to check for compliance with local zoning and other restrictions; to issue permits; to maintain adequate personnel to handle the city building department business; and to provide information and technical services in the prosecution of any legal cases concerning building department activities.

The remaining expenditures budgeted to the county engineer and surveyor apply to the other six divisions of the department namely, the architectural, construction, industrial waste, mapping, sanitation and survey divisions. While expenditures for these services are not broken down by division in the budget, the total amounts are shown below:

Division	*Fund*	*Budgeted expenditures*	*Net expenditures*
County engineer	General	$77,229	$97,291 (credit)
	Salary	893,765	591,765
	Total	$970,994	$494,474
Surveyor	General	$115,974	$66,361
	Salary	1,643,399	1,471,999
	Total	$1,759,373	$1,538,360
Combined totals		$2,730,367	$2,032,834

The particular services provided by these six divisions are many and varied, but the most important ones are listed below:

Architectural Division

Design and planning of civic centers, public buildings and other facilities.

Construction Division

Providing engineering, supervision and inspection in the construction of:

(a) Sewers in county improvement districts;
(b) Sewers constructed under private contracts;
(c) Cash contract projects, normally involving county property;
(d) Storm drains;
(e) Miscellaneous projects under the county engineer.

Designing storm drains and miscellaneous projects, including plans and estimates.

Checking proposed subdivision plans for proper drainage provision.

Investigating complaints regarding drainage conditions.

Clearing underground permits for utilities with respect to their effects upon storm drains.

Industrial Waste Division

Prevention and elimination of water pollution.

Control of industrial waste disposal facilities.

Conservation and reuse of water at industrial plants.

Protection of county sewerage system from damage by industrial waste.

Coordination and supervision of rubbish dumping.

Mapping Division

Title examining and Torrens title work.

Checking of subdivision maps.

Maintenance of cadastral maps.

Preparation and maintenance of precinct maps, school and special district maps, and political jurisdiction maps.

Maintenance of assessor's maps and general index maps.

Preparation of city annexation maps.

Sanitation Division

Formation of and annexations to sewer maintenance districts.

Checking underground permits.

Preparation of sewer petitions.

Preparation of plans and estimates for sanitary sewer systems, sewage pumping plants and sewage treatment plants.

Operation and maintenance of sanitary sewers and pumping plants.

Acquisition of sanitary sewer rights of way.

Survey Division

Location surveys for primary and secondary highways, county roads, freeways and fire protection roads.

Boundary, topographic and construction surveys.

Surveys for location and construction of sanitary sewers and storm drains, and center line surveys for county improvement jobs.

Precise geodetic surveys embodying first order triangulation and traverse, for coordination of governmental and local surveys within the county.

Miscellaneous surveys, including location of tideland boundaries, beach erosion surveys, perpetuation of government survey monuments, national forest and city boundary surveys, and the like.

Of the gross budget expenditure of $2,730,367 to finance the operations of these six divisions, about $700,000 is recovered through fees and charges for direct services to individuals, cities and special districts. Thus net expenditures amount to approximately $2,000,000. The major portion of these fees and charges derives from services rendered to the 77 sewer maintenance districts; to county improvement districts; to several cities; and to subdividers and other private enterprises. The county constructs local sanitary sewers in unincorporated areas under assessment district proceedings, so that the entire cost is charged against the property benefited thereby. No county contribution is made to any of these improvement districts. Sewers in new subdivisions are installed at the expense of the subdivider, who deposits with the county engineer a sum of money sufficient to cover the cost of supervision and inspection of the work. Where a subdivider is required to install a long outfall sewer that is larger or deeper than might be necessary to serve his subdivision, he may be reimbursed for such extra expense by the county, which in turn collects from the persons subsequently connecting to the sewer. The county operates and maintains sewers in unincorporated areas in which special maintenance district taxes are levied to pay the full costs of such maintenance, including departmental overhead.

It should also be noted that some other services cannot be traced directly to the residents of particular areas as the leading beneficiaries. An analysis of the services performed by the architectural division shows clearly that the location of the buildings or facilities which it designs is not a peg upon which the cost of such facilities can be hung. The expenditures of this division enter into the total costs of county projects as part of their overhead, and the diffusion of the benefits from the division's work must therefore be judged on the basis of the uses to which the projects are eventually put. The same comment applies to some of the work performed by the construction, mapping and survey divisions. For example, the construction division provides engineering, supervision and inspection service with respect to certain county construction projects for which the county engineer is responsible. The mapping division annually examines the status of titles for the real estate with which the various county departments are concerned for public purposes. The survey division performs location surveys for primary and secondary highways. These involve an unknown amount of expenditure; they constitute an overhead which enters into the cost of the facility or service.

The expenditures arising from the services described above were met either by charges to individuals, cities and special districts, or they constituted part of the general overhead for county operations and hence were legitimate charges upon all county taxpayers. There are, however, a considerable number of services where the primary responsibility for payment for the service cannot be so clearly defined. Many of these services benefit the taxpayers of a particular area, but it is extremely difficult to allocate the costs of such services to such particular areas. Moreover, they cannot be considered as general overhead items. These problems as they relate to particular divisions and services are discussed below.

THE CONSTRUCTION DIVISION. This division is concerned with storm drain projects in the unincorporated areas and miscellaneous projects under the county engineer. Storm drains, however, account for the great bulk of the expenditure, and in 1950-51 the county spent $106,920 in providing such drains. Some of these storm drainage and flood control projects protect highways, parks or other public facilities from damage, and the allocation of their benefits to particular areas depends upon the nature of the facilities. Without detailed information as to the location of every project and the nature of the facility it protects, no precise statement can be made as to the area served and hence who should bear the cost. But there is a reasonable presumption that many such projects would not be counted as having a strictly local impact. Other projects primarily protect private property, industrial and residential, and could definitely be classified as less than county-wide in nature. Unfortunately, no figures showing county outlays on such projects are obtainable. However, on the assumption that storm drain work in fiscal 1952 involved about the same total cost as in fiscal 1951 ($100,000), it seems reasonable to hazard the guess that the cost of strictly local benefit storm drain and flood control projects in fiscal 1952 amounted to approximately $75,000.

The Industrial Waste Division. This division is principally concerned with problems of water pollution, industrial wastes and rubbish disposal. Water pollution control work, and such of the industrial waste control work as relates to water pollution, must certainly be regarded as being of county-wide benefit. The importance of this work to all residents and areas of the county is clearly indicated by the following statement of the division engineer:

> "Los Angeles County is unique in the fact that a major portion of its water supply must always be obtained from great underground basins or reservoirs located directly beneath our cities, from which our cities and 500 private water companies, as well as thousands of ranchers and industries obtain their water supply. Once these underground basins are polluted by industrial chemical wastes, the affected water supply may be damaged or destroyed for many years until dilution can eliminate the objectionable chemicals."[15]

In fact, water pollution control has not been confined to the unincorporated areas of the county; the county industrial waste division has frequently taken action to stop or prevent pollution from practices occurring in cities. The division engineer further stated:

> "The functions of the division pertaining to water pollution and water conservation at industrial plants are of major benefit to most of the cities of the county, as well as to the unincorporated areas. In performing these functions, it has been necessary for the division to take corrective action involving approximately 150 industries located within many incorporated cities not directly under contract with the county. In each of these cases, the responsible industry was disposing of wastes in a manner which had polluted, or which was considered liable to pollute, underground waters in the cities as well as in adjacent unincorporated areas. Such cases have been concerned with industries located in the following cities: Hawthorne, Vernon, Los Angeles, La Verne, South Gate, Pasadena, Inglewood, Pomona, El Monte, Torrance, Montebello, Azusa, Long Beach, Beverly Hills, Arcadia, Whittier, Alhambra, Compton, Glendora, Gardena, Covina and Huntington Park."[16]

The purpose of a considerable portion of the industrial waste program, however, is to protect sewer systems in the unincorporated areas against damage from harmful industrial discharges. This function can properly be classified as primarily local in benefit.

The planning and control of rubbish and refuse disposal relates entirely to the unincorporated areas. About one-third of the population of the unincorporated area is served by the 14 garbage disposal districts administered by the county health officer. The other two-thirds are served by private collectors, or dispose of rubbish themselves. In all cases, disposal is made at 14 dump sites and disposal facilities licensed to operate in the unincorporated area of the county and 39 dumps which are legal but not licensed. The county itself operates no dumps, but the industrial waste division inspects all these facilities. In 1950-51 it conducted 1,341 inspections and prepared 106 cases involving violations of county rubbish disposal ordinances for prosecution.

It is estimated from an examination of the activities of this division that approximately 25 percent of the services it provides are of direct benefit to unincorporated areas only. Assuming that total expenditures of the division in 1952 approximated those for 1951, the cost of those activities which are of particular local benefit can be estimated at $50,000.

The Mapping Division. This division prepares and maintains maps for precincts, school and special districts, townships, assessment purposes, general reference, city annexations and real estate purposes (cadastral maps). Only the last item appears to be related solely to the unincorporated areas. The other services provide basic information of general value to all residents of the county. In addition, this division occasionally performs street naming and numbering functions for the unincorporated areas. The costs of cadastral map work during fiscal 1952 are estimated at $16,000.

The Sanitation Division. The operation and maintenance of the 77 sewer maintenance districts under its general supervision are the main concerns of this division. According to the county surveyor and engineer these districts pay the full costs of all surveyor-engineer services. Detailed work orders are maintained for each job performed, showing not only the direct division costs but a share of general department overhead as well. Such time as is devoted to the preparation of sewer petitions and the formation of sewer districts is a public cost, but the costs of plans and rights of way acquisition are recovered from particular sewer districts after they are formed. No significant inequity appears to exist with respect to the services provided by this division.

The Survey Division. This division performs services of both a county-wide and less than county-wide nature. All survey work not accounted for by direct charges to districts or by assignment as overhead to other county projects appears to be of a county-wide nature. The latter includes boundary and topographic surveys, as well as beach erosion and benchmark surveys, which clearly are of general interest and benefit.

From the preceding analysis it may be estimated that the costs of the department's less-than-county-wide services amounted to $141,000. It may also be estimated that about 8 percent of this amount, or $11,000, was paid from the county general fund, while $130,000 was paid from the salary fund. On this basis, the share of the costs which may be credited to cities amounts to $96,100, as shown below:

---

[15] "Report to Chief Administrative officer," Los Angeles County Engineer and Surveyor, July 29, 1952. Annex 3.

[16] *Ibid.*

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$11,000	$1,600
Salary	130,000	94,500
Total	$141,000	$96,100

[a] Calculated according to the fund analysis shown in Table 13.

It should, however, be noted that from time to time various divisions of the department perform services for cities without charge, in addition to building inspection for six cities, drainage and flood control inspection for two cities, industrial waste control for three cities, and subdivision map checking for 39 cities, all performed on a contract basis. The survey division is frequently involved in such service to cities as a result of a direct order from the board of supervisors in response to a resolution by the governing body of a municipality, or in response to a request from a city official. During recent years the survey division engineer reports the following survey services rendered to cities without charge:

1. Geodetic control surveys to 14 cities:
   Los Angeles
   Bell
   Long Beach
   Arcadia
   Burbank
   Maywood
   San Fernando
   Sierra Madre
   Glendale
   Compton
   Lynwood
   Huntington Park
   Alhambra
   Pasadena
2. Beach erosion surveys in six cities:
   Los Angeles
   Hermosa Beach
   Santa Monica
   Redondo Beach
   Manhattan Beach
   Torrance
3. Harbor subsidence studies in Long Beach.

The survey division engineer estimated that the cost of such services provided to cities approximated $13,000 in 1950-51.

The Regional Planning Commission. The Los Angeles County Regional Planning Commission was the first regional planning commission in the United States. It was created by the board of supervisors in 1923, as a result of private citizen conferences held in recognition of the need for controlling and coordinating county development. The original planning commission consisted of five members, one commissioner being appointed by each of the five supervisors. At first the commission had no staff of its own and relied on other departments for assistance. As county problems multiplied and the commission's work increased, staff was gradually added and the commission itself was increased to its present size of 10 members including four ex officio advisory members. The latter include the director of the county parks and recreation department, the district attorney, the county surveyor and the county road commissioner. The present staff numbers some 80 full-time persons. The budgeted expenditures of the commission for 1951-52 are shown below:

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentage*
General	$27,460	$12,610	3.3
Salary	371,608	371,608	96.7
Total	$399,068	$384,218	100.0

As stated in the budget, the regional planning commission "is charged with the responsibility of advising the board of supervisors in matters concerning the physical development of Los Angeles County. Its duties are mandatory, as outlined in the State Planning Act. This department administers the county subdivision, zoning and building line ordinances, and coordinates the public works programs of various departments in the county."[17]

The operations of this agency can be summarized under the headings of advance planning, plan administration and research. To support the commission, gross expenditures budgeted at $399,068 were required during fiscal 1952. These outlays were reduced to a net figure of $384,218 by revenues for zoning, transcript service and miscellaneous fees.

The advance planning division performs the technical planning work required to develop and revise master plans, official plans, community development plans and special planning projects. Its workload originates from official orders of the board of supervisors and occasional special orders of the regional planning commission. The annual reports issued by the regional planning commission indicate that a majority of the advance planning division's personnel has been, and is, assigned to the preparation of official zoning plans for unincorporated areas. This results from the continued building activities in what were formerly sparsely settled areas, plus rapidly changing conditions in areas previously zoned. Thus a large volume of zoning and rezoning work is created. In 1927 the regional planning commission created the first county-wide zoning ordinance of its kind in the United States. Under that ordinance, as amended in 1951, 13 percent or 432.1 of a total of 3,324.3 square miles of unincorporated area in the county has been precisely zoned. In the "coastal plain" region south of the San Gabriel range, comprising 455.2 square miles, 379.9 square miles or 83.5 percent have been zoned by the county. An additional area of 60 square miles (13 percent) in the southeast portion of the county is now under zoning study. Thus, for all practical purposes, it may be said that the urban areas of Los Angeles County are completely zoned. Figure 20 summarizes zoning progress through June, 1951.

Three sections have been set up within the advance planning division; viz., master plan and design; map and ordinance; and street naming. The latter two sections are exclusively concerned with the unincorporated areas, except that the street naming section extends advisory services to the 45 cities. The master plan and design section largely performs functions of value to the entire county, including the cities. Aside

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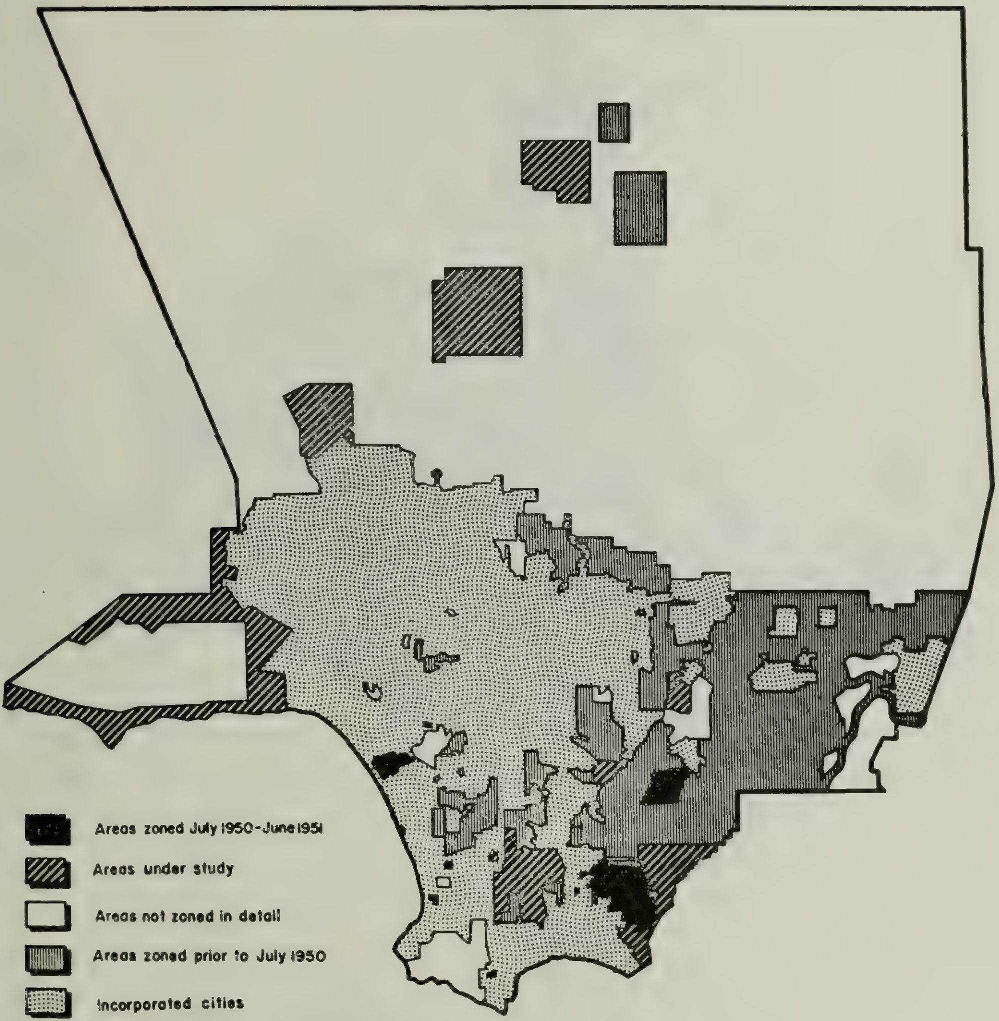
[17] *County Budget Fiscal Year Ending June 30, 1952*, Los Angeles County, p. 82.

FIGURE 20

LOS ANGELES COUNTY
ZONING PROGRESS THROUGH JUNE, 1951


Areas zoned July 1950-June 1951
Areas under study
Areas not zoned in detail
Areas zoned prior to July 1950
Incorporated cities

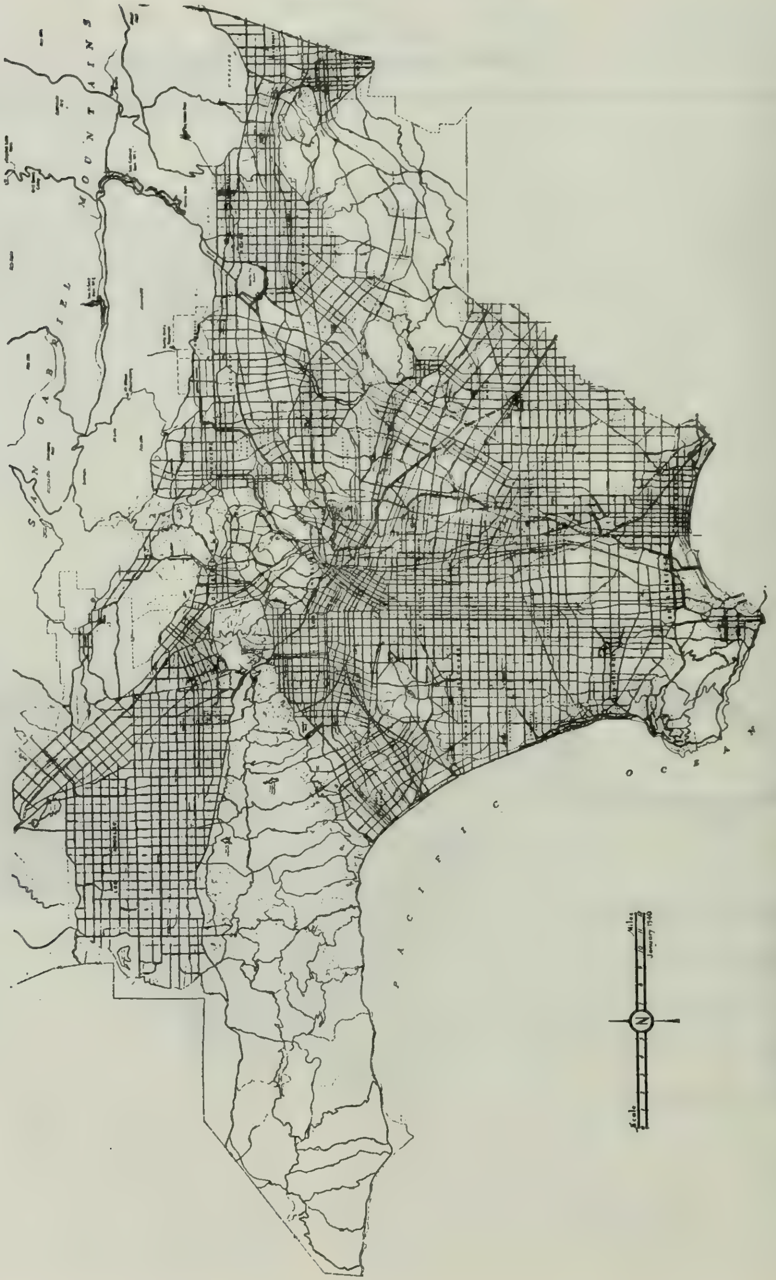


FIGURE 21
LOS ANGELES COUNTY HIGHWAY PLAN 1940

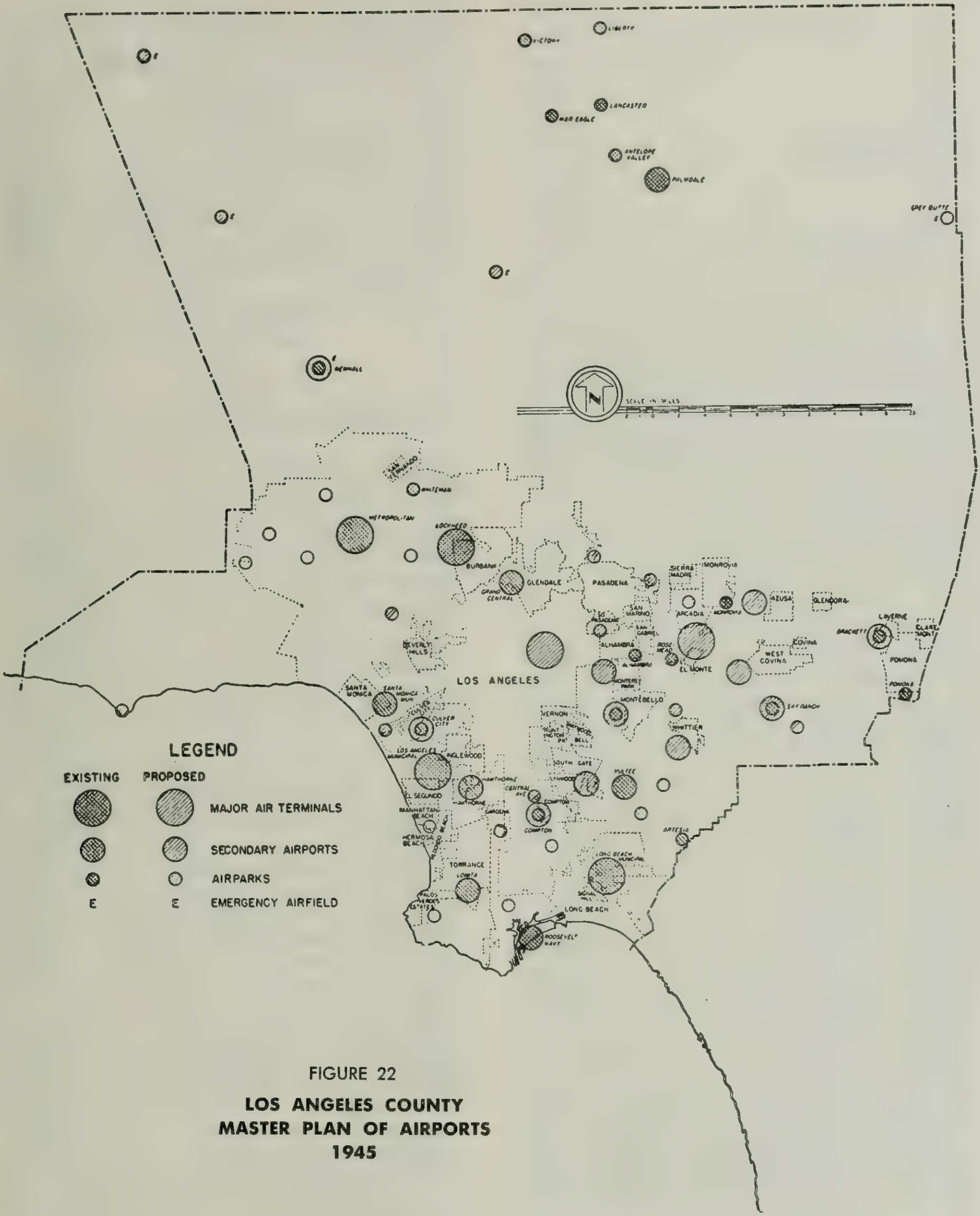


FIGURE 22

LOS ANGELES COUNTY
MASTER PLAN OF AIRPORTS
1945

from its community coordination and development plans, most of which are quite local in character, this section has been responsible for the development and revision of eight master plans adopted by the board of supervisors:

	Year adopted
Master plan of land use	1940
Master plan of highways	1940
Master plan of shore line development	1940 (Revised 1945)
Master plan of airports	1941 (Revised 1946)
Master plan of administrative center	1941
Master plan of public buildings	1947
Master plan of freeways	1947
Master plan of parks	1948

Figures 21 and 22 illustrate the highway and airport master plans. In their functional approach to the particular planning problem, made without regard to the boundaries between incorporated and unincorporated areas, they are typical of the other master plans, except those for land use and parks. Thus, six of the eight master plans are over-all programs for the region coterminous with the Los Angeles County boundary, and thus it appears are of benefit to all county areas and residents. The land use plan and major portions of the parks plan concern themselves only with the unincorporated areas.

The function of the planning administration division is to secure conformance with the eight master plans and related ordinance provisions. It can, of course, only enforce such standards and regulations in the unincorporated areas of the county. The division's heaviest work load arises in connection with subdivisions, with respect to which subdividers' maps must be checked; lots and tracts processed; and detailed inspections and conferences held in order to determine whether land use regulations are being observed. However, a considerable amount of the division's activities also relates to zoning changes and zoning investigations. One function of this division may be regarded as county-wide in nature; i.e., the processing of proposed acquisitions of land for public agencies or purposes benefiting the entire county, such as sites for regional parks, schools, county institutions and administrative buildings.

The planning research division prepares studies relating to social, economic and physical conditions in Los Angeles County, upon request of the board of supervisors, the chief administrative officer, other county departments or other divisions of the planning commission. These include estimates of present and projected population in all parts of the county and studies of blighted areas, census tract boundaries, and housing vacancies.

It is clear that, for the most part, the regional planning commission deals with problems arising in the unincorporated areas of the county, and primarily in those sections of the unincorporated area which are urban in character. However, an important part of its regional work leading to the creation of master plans, and of its general research activities, appear to be of general county benefit.

No precise allocation of the commission's budget between county-wide and local area benefit can be made on the basis of the data available. However, both county and city officials seem to agree that about 25 percent of the total expenditures of the commission can be considered of general county benefit (on the basis of their own evaluation over a period of years). This means that three-fourths of the net outlays, or about $288,000, should be viewed as spent on unincorporated area matters during fiscal 1952. Of that amount, it may be estimated that $9,450 derives from the general fund and $278,550 from the salary fund. Thus, city contributions in support of this county service may be estimated at the amounts shown in the tabulation below:

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$9,450	$1,390
Salary	278,550	202,500
Total	$288,000	$203,890

[a] Calculated according to fund analysis shown in Table 13.

Mention should also be made of the fact that the regional planning commission performs some planning work for a number of the smaller cities who do not have their own planning staffs. Detailed data on the extent of this work for cities is not available, but the director of planning indicated that land use planning, detailed plans for city parks, studies of off-street parking and traffic problems, and studies for civic center layouts are included.

The preceding analysis of certain specific services provided under the budget category of ''General Government'' indicates that significant amounts of the budgeted expenditures in 1952 for the county surveyor and engineer and for the regional planning commission supported operations and activities which were of greatest benefit to the unincorporated areas of the county. It was estimated that these operations involved expenditures of $429,000, or 1.4 percent of the total net expenditures of $31,273,322 for general government. It was further estimated that of this amount of expenditure, the share borne by city residents amounted to more than half, or $299,990. The balance of net expenditures for general government, or $30,844,322, is considered as having provided services and activities which were of general benefit to all county areas and residents.

GENERAL GOVERNMENT SERVICES TO CITIES. Los Angeles County provides a number of general governmental services directly for city governments. Some services are furnished on a contractual basis involving a charge to the contracting city while other services are furnished without any charge. In addition to the contractual arrangements already discussed in relation to the services of the county department of surveyor and engineer and building and safety, cities also contract with the county for other important activities.

Forty-two of the 45 cities in Los Angeles County contract with the county for property assessment and tax collection services, including field studies, preparation of the roll, extension of the rate, preparation of the tax bill, and all activities necessary to collect property taxes for the cities. Arcadia and Pasadena use the county assessment rolls but perform their own collections while Long Beach does both independently. During fiscal 1951 these 42 cities paid a total of $73,333.61 for such services, based upon tax collections of over $62,000,000. The amounts which the individual cities paid for these services in 1951 are shown in Table 14 below. The amounts were determined pursuant to Act 8464, General Laws, which provides for a charge of 1 percent for the first $25,000 collected, and one-quarter of 1 percent for collections in excess of $25,000. A special charge of approximately one-twentieth of 1 percent is made to the City of Los Angeles.

TABLE 14

LOS ANGELES COUNTY
CITIES WHICH CONTRACT WITH THE COUNTY FOR ASSESSMENT AND TAX COLLECTION SERVICE

1950-51

Alhambra	$2,260.79
Avalon	291.92
Azusa	656.83
Bell	528.02
Beverly Hills	2,444.24
Burbank	4,493.07
Claremont	359.44
Compton	1,611.44
Covina	420.90
Culver City	1,596.50
El Monte	541.17
El Segundo	1,516.79
Gardena	394.65
Glendale	3,440.69
Glendora	328.83
Hawthorne	659.35
Hermosa Beach	585.31
Huntington Park	1,313.32
Inglewood	2,162.16
La Verne	289.82
Los Angeles	22,627.17
Lynwood	850.14
Manhattan Beach	948.53
Maywood	419.34
Monrovia	1,065.22
Montebello	1,044.48
Monterey Park	849.13
Palos Verdes Estates	309.15
Pomona	1,905.37
Redondo Beach	1,456.92
San Fernando	665.63
San Gabriel	902.59
San Marino	1,162.37
Santa Monica	5,077.02
Sierra Madre	425.85
Signal Hill	736.36
South Gate	1,633.73
South Pasadena	1,132.50
Torrance	1,701.01
Vernon	995.18
West Covina	224.00
Whittier	1,306.68
Total	$73,333.61

SOURCE: Information supplied by the chief administrative officer, Los Angeles County.

Unquestionably the contracting cities gain important economies in their assessing and tax collecting functions as compared with the costs they would incur if they established their own agencies for such purposes. The City of Los Angeles, for example, paid less than $23,000 for assessment and tax collection services during fiscal 1951, while the City of Long Beach spent over $200,000 performing such operations independently. However, such savings to cities cannot be considered as offsets to any subsidies which, as might be alleged, are paid by city taxpayers for the benefit of residents of unincorporated areas. They are savings realized through the centralization and more efficient administration of a particular function and, so long as county costs are recovered through contractual arrangements, no group of taxpayers may be said to suffer as a result of what city residents gain.

Nine cities contract with the Los Angeles County Civil Service Commission for complete personnel services, consisting of examination, position classification, reviews of appeals, service rating plans and civil service rules. Nine other cities contract with the county for examination services only. The cities, together with amounts paid, are as shown in Table 15. The county received $27,927.04 for such services during fiscal 1951, and receipts for fiscal 1952 are estimated at $28,977.89. The charges are based on the number of employees per city and the extent of the services provided.

TABLE 15

LOS ANGELES COUNTY
PERSONNEL SERVICES PROVIDED TO CITIES

City	*1950-51 charges*	*1951-52 charges*
Complete personnel service to:		
Bell	$1,072.50	$1,265.00
Burbank	8,180.00	8,460.00
Gardena	862.50	862.50
Manhattan Beach	1,212.50	1,947.50
Maywood	1,037.50	1,037.50
Palos Verdes Estates	--	293.35
Redondo Beach	2,050.00	2,140.00
San Fernando	1,790.00	1,790.00
South Gate	2,520.00	2,620.00
Examinations only conducted for:		
Arcadia	1,230.00	1,265.00
Culver City	1,595.00	--
Hawthorne	--	760.04
Inglewood	1,940.00	1,910.00
Lynwood	1,055.00	1,037.00
Montebello	--	370.00
Monterey Park	965.00	--
Torrance	1,615.00	1,675.00
Whittier	802.04	1,545.00
Totals	$27,927.04	$28,977.89

SOURCE: Information supplied by the chief administrative officer, Los Angeles County.

General government services provided to cities without charge include the surveyor-engineer and planning items, already mentioned. City residents also receive a considerable amount of service from the district attorney in the form of prosecutions for violations of *city* ordinances. In an unpublished report (March 13, 1952) prepared for the chief administrative officer in connection with inquiries from this committee, it was stated:

> "As a practical matter, in most, if not all, of the 45 incorporated cities in Los Angeles County, specifically excepting therefrom Long Beach, Santa Monica, Pasadena and the City of Los Angeles, city ordinance violations are connected up with state violations in order to place upon the district attorney the duty of prosecuting the case. The courts are not separated so as to require the prosecution of each by a separate prosecutor, and since a state violation is joined, the district attorney as a practical matter prosecutes both."

The same report at a later point brings out the fact that the county is involved in prosecutions of city ordinances even when no violation of a state statute is involved:

> "The preliminary department in the organization of the district attorney's office has been created for the purpose of presenting evidence at preliminary hearings where a complaint has issued in courts other than those existing in the cities of Long Beach, Santa Monica, Pasadena and Los Angeles. Not only do these deputies present evidence at such hearings, but they are called upon to prosecute all state misdemeanors in all county areas other than those mentioned wherever a city prosecutor does not desire to prosecute the case, and in addition thereto, all city violations."

This report goes on to mention that the district attorney "has instituted a 24-hour service, whereby any of the 45 (city) police departments, the Sheriff, the California Highway Patrol, and other law enforcement agencies, may call upon him for an assignment of a deputy district attorney to assist in major investigations. Many of the smaller cities, for example in murder cases, request the assistance not only of the Sheriff's office, but that of the district attorney of the county." As a result of this policy, it appears that a deputy and an investigator in the district attorney's office are ready to respond to such calls at all times.

Protection to Persons and Property. The 12 county services and activities grouped under this general budget category accounted for an expenditure of $10,867,999 in 1951-52.[18] Gross expenditures amounted to 3.8 percent of all county expenditures in 1951-52. After deducting $2,558,137 received from fees, charges and intergovernmental payments, the net expenditure was reduced to $8,309,862, or 3 percent of total county net outlays.

Three of the 12 items in this group are examined in some detail in the following sections, as to the manner in which the services they support are distributed. They are the sheriff; the forester and fire warden; and the pound department. Other items in this general category raise no issues of inequity as between taxpayers in different areas. These include such services as those of the public administrator, sealer of weights and measures, the county recorder, and insurance. Three noncontroversial agricultural services also include certain agricultural services acknowledged to be vested with a county-wide interest; viz., the farm advisor, the agricultural department and the livestock department.

LAW ENFORCEMENT. The sheriff is charged with enforcement of the law and with maintaining peace and order within the county.[19] The Los Angeles County charter modified the sheriff's powers and duties, as set forth under the general laws, in only one respect in connection with constables. Police protection and the many investigatory functions required from the sheriff's department are provided in unincorporated areas only. The sheriff's department has mutual aid agreements with the Los Angeles County Disaster Relief Authority and the cities, and they include such services as communications, fire protection, transportation, medical services and the like, as provided by the California State Disaster Act.

Budgeted expenditures for law enforcement in Los Angeles County in fiscal 1952 are shown below:

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentage*
General	$813,435	$795,435	13.1
Salary	5,441,486	5,296,486	86.9
Total	$6,254,921	$6,091,921	100.0

Gross budgeted expenditures were reduced by about $163,000 to a net of $6,091,921 by fees received for serving warrants, writs and other civil papers and by reimbursement from other government units for prisoner transportation. About 13 percent of the net cost of law enforcement is met from the general fund and the remainder, 87 percent, is met from the county salary fund.

In addition to the sheriff's headquarters station, located in the Hall of Justice in downtown Los Angeles, the sheriff's department operates 12 substations located throughout the county. The locations of these substations and their administrative areas are shown in Figure 23.

As of July, 1952, the sheriff's department reported a total compelement of 1,909, including 1,374 police personnel and 535 civilian personnel. These were distributed among the six divisions of the department as follows:

	Personnel			*Division personnel as a percentage of departmental total*
Division	*Police*	*Civilian*	*Total*	
Administration	60	84	144	7.5
Civil	38	54	92	4.8
Detective and crime prevention	246	34	280	14.7
Jail and corrections	379	107	486	25.5
Records and communications	34	107	141	7.4
Uniform	692	74	766	40.1
Total	1,449	460	1,909	100.0

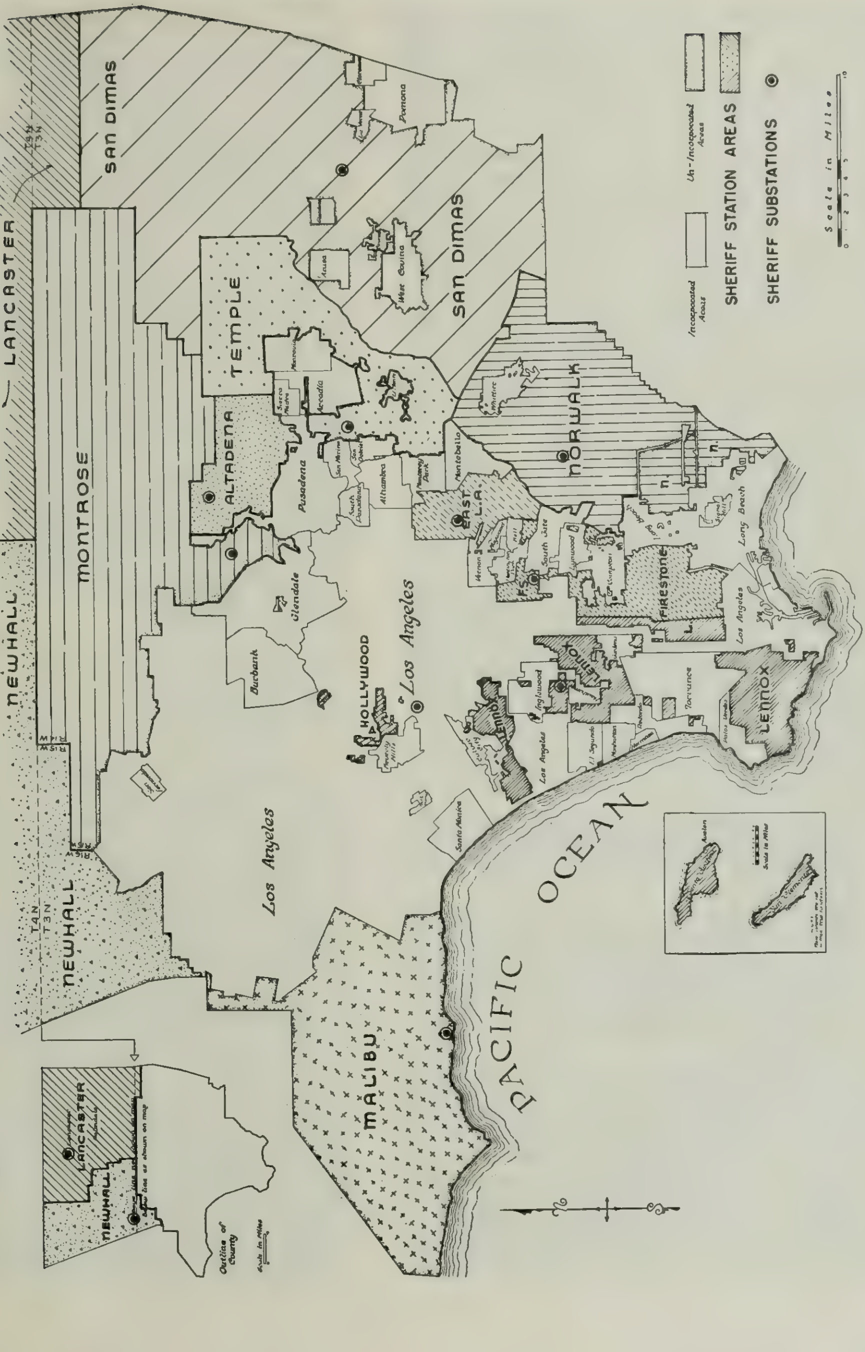
---

[18] See Appendix E, Table 2 for a detailed listing of county budget items under this heading.

[19] See Chapter II for a legal description of the powers and duties of the county sheriff.

FIGURE 23

LOS ANGELES COUNTY SHERIFF'S SUBSTATIONS 1951



Since expenditures by divisions were not available, the figures above were estimated by distributing the total gross expenditures for the sheriff's department among the six divisions on the basis of personnel. The following paragraphs discuss the services provided by these various divisions of the sheriff's department.

The Administration Division. The Administration Division employs 144 persons, 51 of whom are assigned to general administrative duties. Although these include minor functions properly classifiable as county-wide in nature, they are more simply treated as overhead for the other five divisions. The remaining personnel is assigned to the jail booking office and to special duties for other divisions. The estimated cost of operating the administration division amounts to $469,100. If this amount is distributed among the five other divisions in accordance with the assignments of personnel indicated above, the expenditures of these divisions would total the amounts shown below:

Civil division	$324,100
Detective and crime prevention division	992,300
Jail and corrections division	1,731,400
Records and communications division	499,500
Uniform division	2,707,600
Total	$6,254,900

The Civil Division. The civil division includes many township constables and their deputies as well as sheriff's deputies among its staff of 92 persons, even though the duties of a number of constables have been taken over recently by the marshals of the municipal courts as part of the recently adopted court reorganization. Constables are appointed by the sheriff from the eligible civil service list and are under his direction and supervision.[20] Article VIII of the county charter provides for the creation of a constabulary department, as follows:

> Sec. 28. "There is hereby created a Constabulary Department, consisting of the Sheriff and of all Constables, who are hereby made ex officio Deputy Sheriffs."
>
> Sec. 29. "The Sheriff shall be the head of said Department, and shall so organize the same as to give the county efficient and effective police protection. Each Constable shall be subject to the orders of the Sheriff and must serve process within his township, or elsewhere, when requested, and he shall also perform all the duties required of him by law."

Although the duties of the constables, as set forth in the charter, imply some performance of police protection work, their time is almost entirely devoted to serving warrants and subpenas. According to the sheriff, no work on criminal cases has been performed by constables since 1937. Thus the whole civil division is regarded as primarily dealing with the serving of civil and criminal writs arising in connection with the administration of justice by the superior and inferior courts. The number of warrants served by the civil division rose almost threefold in 1951, because the sheriff's department was called upon to serve thousands of warrants for vehicle law violators which were formerly served by the California Highway Patrol. The increase between 1950 and 1951 amounted to 11,581 warrants, and this obviously caused a great increase in the expenditures for this division. The sheriff reported that during the 1951 calendar year a total of 22,560 criminal subpenas were served by the civil division, at an estimated cost of almost $100,000. This must properly be regarded as a service which accrues to the benefit of all county residents since it is essential in the administration of justice and the prosecution of violators of state laws. The other expenditures by this division were associated with serving warrants and civil writs. These costs were recovered by direct charges made for such services, estimated at about $165,000 for fiscal 1952. The services of this division must thus be classified as county-wide in nature.

The Detective and Crime Prevention Division. This division performs investigatory, technical and prevention functions. It employs 280 persons plus some special and volunteer personnel and estimated expenditures for fiscal 1952 amounted to $992,300. Personnel is distributed among the various services in this division in the following manner.

	Personnel assigned
Detective bureau	196
Crime laboratory	7
Juvenile bureau	55
Narcotics detail	22
Aero detail	Special assignment, plus volunteers

Although it would seem that a considerable amount of this division's services would be rendered inside cities, an over-all view of its operations shows that for the most part its activities are involved with law enforcement and crime prevention in the unincorporated areas. While smaller cities depend rather heavily on the sheriff's investigation services, the larger cities handle the great majority of their investigations independently. In the case of felony investigations, the sheriff gives assistance to all cities except Long Beach, Los Angeles, Pasadena, San Marino and Santa Monica but such assistance seldom involves taking over a case and carrying it through to completion.

Two-thirds of the detective personnel are stationed at central headquarters and are dispatched on cases as the need arises. All 12 substations, however, have permanent detective personnel assigned to handle investigations in the substation area. Five substations viz., East Los Angeles, Firestone, Lennox, Norwalk and Temple, have investigators on radio car duty.

Of the combined total of 251 personnel in the detective and juvenile bureaus, the sheriff reports that 124 are distributed among the 12 substations, while the other 127 are stationed at headquarters. The assignments by substation are listed below:

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[20] Los Angeles County Charter, Article V, Section 18.

Altadena	5
East Los Angeles	24
Firestone	22
Hollywood	6
Lancaster	3
Lennox	15
Malibu	2
Montrose	2
Newhall	2
Norwalk	23
San Dimas	6
Temple	14
Total	124

The facilities of the crime laboratory are available to, and are used by, all city police departments. This service is unquestionably county-wide in scope. The juvenile, narcotics and aero units often assist city police departments in investigations and, in the case of the smaller cities again, they are frequently the only available agency for conducting such specialized activity. On the other hand, the cities of Los Angeles, Long Beach, Pasadena and Santa Monica maintain their own juvenile and narcotics squads, and hence are not dependent upon the county for such services.

The sheriff reports that the narcotic detail handles all narcotics cases for the following 32 cities :

Alhambra
Arcadia
Azusa
Bell
Burbank
Compton
Covina
Culver City
El Monte
Gardena
Glendora
Hawthorne
Hermosa Beach
Huntington Park
Inglewood
La Verne
Glendale
Lynwood
Maywood
Monrovia
Montebello
Monterey Park
Pomona
Redondo Beach
San Fernando
San Gabriel
San Marino
Sierra Madre
South Gate
South Pasadena
Torrance
Whittier

Three other cities viz., Pasadena, Long Beach and Santa Monica, have their own narcotics details, which are assisted by the county narcotics detail from time to time. In addition the narcotics detail provides special schooling for members of the police forces of various cities, instructing them in the special techniques necessary for successful detection, apprehension and prosecution of narcotics violators.

The sheriff also reports that 41 cities, excluding Los Angeles, Pasadena, Santa Monica and Whittier, received assistance from the juvenile bureau, although this assistance did not, as a rule, involve carrying cases through to completion.

In response to inquiries made by the committee with respect to services performed for city residents, the sheriff stated that 44 cities (all except Avalon) received various types and amounts of services. Investigations, processing of cases and court appearances are performed for many cities in connection with more than 56 types of crimes and misdemeanors, ranging from ''loitering near schools'' to ''homicide.'' The sheriff estimated that the division's direct services, by all details, inside cities during calendar 1951 involved over 56,000 man-hours and more than $134,000. The sheriff further stated that:

> ''Special consideration, with emphasis, should be given to the fact that monetary figures, even in this questionnaire, are those based upon actual costs to county government. It should be borne in mind that the quality and type of services given is specialized and technical in character, and if the same were to be provided and maintained by the various cities, the cost of expensive equipment, highly-trained specialists, and general overhead would run to many times the figures shown * * *. In fact, it is reasonable to assume that if the various cities were to attempt to supply these specialized service of themselves, not only would the costs be exhorbitant, but in the majority of the cities quite possibly beyond their normal funding abilities.''[21]

A police technical subcommittee consisting of the chiefs of police of six Los Angeles County cities presented the following comments with respect to the foregoing points regarding the services provided within cities by the sheriff's department:

> (The response to the committee questionnaire submitted by the sheriff) ''indicates that direct assistance is given to all cities within the county in investigation of crimes committed within incorporated territory. It is true that in some of the very small cities this type of assistance is given. In a few cases the sheriff's office detectives take over nearly all of the follow-up investigation work, or coordinate those investigations with their own. Most of the cities, however, maintain detective bureaus within the structure of their own police department and, while working relations with the sheriff's office are very good, their cooperative effort is on exactly the same basis as it is with any other police department. In other words, if the activities of a gang of criminals overlaps jurisdictional lines, investigators from the various jurisdictions involved work together in solving the case. In these cases the sheriff's office becomes just another police department. * * *
>
> ''The narcotic detail * * * often assists the city police departments in their investigations. Sometimes, however, the personnel of (this detail comes) into city jurisdiction without notifying the local department and embarrasses investigations that the local officers are conducting.''[22]

It is extremely difficult to assign the costs of the services of this division to cities and unincorporated areas. The sheriff has estimated that the value of the services of the detective and crime prevention division provided to residents of cities approximated $134,000 in 1951. If the amount for fiscal 1952 is estimated at $170,000, the balance, or $822,300, would appear to represent the amount of detective and crime prevention services provided solely to the unincorporated areas.

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[21] Statement taken from committee questionnaire completed by the Los Angeles County Sheriff's Department, July 14, 1952.

[22] Police Technical Subcommittee, "Analysis of the Information Contained in 'Questionnaire on County and City Relations' compiled by Sheriff E. V. Biscailuz, July 14, 1952." The subcommittee was composed of the Chiefs of Police of the Cities of Arcadia, Glendale, Long Beach, Los Angeles, Pasadena, Redondo Beach and Santa Monica.

Of the $822,300 estimated expenditures in the unincorporated areas, it may be assumed that 13.1 percent derives from the general fund and 86.9 percent from the salary fund, the same proportion as total outlays for the sheriff's department. City contributions could then be estimated in the following manner:

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$107,720	$15,830
Salary	714,580	519,500
Total	$822,300	$535,330

[a] Calculated according to fund analysis shown in Table 13.

The Jails and Corrections Division. This division employed 486 persons, or one-fourth of the total personnel of the sheriff's department in 1951-52. Estimated expenditures for this same fiscal year amounted to $1,731,400. This division performs custodial functions at the various jails, camps and detention centers. In addition to the main county jail, the county also maintains a branch jail at Gorman, a jail ward at the county general hospital, and holdover tanks in the 12 substations. Two jail farms, Wayside Honor Rancho and Biscailuz Center, are also operated. The latter is primarily for juvenile prisoners. A total of six detention camps have been established for prisoners convicted of misdemeanors, who are assigned work on mountain roads and trails. Jail bookings amount to approximately 40,000 annually. Of these bookings, the sheriff's department accounts for 60 percent; federal and state officers 5 percent; the City of Los Angeles 25 percent; and other agencies (mostly cities) the remaining 10 percent. The daily average number of persons in the sheriff's custody at all the above institutions is between 3,600 and 3,800.

The custody of a prisoner convicted of violating a state law or a county ordinance is primarily the responsibility of the county unit of government, and thus is a county-wide matter. It is a function of county government which both city and unincorporated area residents alike must provide and pay for. The custodial expense associated with violators of city or federal laws, on the other hand, is not a county charge and is recovered from the cities or the federal government according to a schedule of charges established each October 1st. At the present time the county charges $1.67 per diem for male prisoners and $2.32 per diem for female prisoners. During the 1950-51 Fiscal Year, the total revenue from such charges amounted to $10,475. No charges are made to cities for prisoners arrested by city police for violation of *state* laws. It is apparent that the services of this division must be classified as county-wide in scope; where custody of prisoners is performed for cities, the county is remunerated.

The Records, Identification and Communications Division. The expenditures of this division were estimated at $499,500 including an assignment of overhead from the administration division. Services are provided to many cities and to unincorporated areas as well. Most of the personnel (141) are assigned to records and identification (93), and the remainder (48) are assigned to communication.

Each year the records-identification section processes approximately 40,000 prisoners; investigates approximately 25,000 fingerprint cases; organizes some 70,000 fingerprint file cards and criminal records; and photographs approximately 15,000 prisoners and county personnel. Much of this work relates to county prisoners held or convicted under state or county law. It is therefore classifiable as a county-wide responsibility because it serves the over-all administration of justice.

This section, however, also performs certain services for city police departments, assisting them in the enforcement of their local ordinances as well as the enforcement of state statutes. Identification work, including latent fingerprint investigations carried through with testimony in court, is performed for the following six cities: Azusa, Covina, Glendora, Vernon, and West Covina. Identification photographs are furnished to any city upon request. City police departments constantly refer to the identification bureau's central file of criminal records, maintained for all persons booked in the county jail; to the comprehensive file of wanted-persons circulars; to the complete file of auto thefts and recoveries in the county; and to many other specialized files. The sheriff's department relays all auto reports to the Los Angeles Police Department twice a day. Two full-time positions in the record bureau are assigned to checking all county files and records, upon the request of the city police departments, for wanted persons and records of suspected persons. In February, 1952, 70 percent of a total of 2,932 name checks and record searches were made for cities. The county makes no charge for any of the above services provided to cities.

The work performed by the communications section is primarily concerned with the actual *enforcement* of the law and furnishing police protection in the unincorporated areas of the county. It cannot therefore be classified in the same way as the records-identification section. Some county-wide service is provided in the civil defense program, and the communications phases of this program require the major portion of the time of several communications section employees. The remaining functions of this section, however, are largely concerned with law enforcement in the unincorporated areas.

The sheriff maintains a comprehensive teletype system of 52 units, of which 37 units are furnished by the county to the police departments of the 37 largest cities. Since it is connected to the state teletype network, the county system relays messages and all-points bulletins between state agencies and all cities in the system, except Los Angeles and Long Beach, which have direct hookups with the state network. The eight cities without teletype units are served through the nearest sheriff substation. The sheriff also relays local broadcasts throughout Los Angeles County upon request from any city. The only expense to cities in connection with this teletype service is incidental to the housing of the units and providing supplies of paper and ribbons. According to the sheriff, the direct cost of operating the units installed in the 37 cities was $23,144 in fiscal 1951. This did not include costs associated with city link-up facilities at the sheriff's headquarters.

A telephoto machine, the only one of its type in Southern California owned and operated by a law enforcement agency, is made available to the cities on a cost basis. This provides almost instantaneous transmission throughout the Nation of copies of fingerprints, photographs, documents, maps, tire marks, ballistics data and other visual material employed in crime detection and criminal apprehension.

No radio facilities or services are furnished to cities by the communication section. The sheriff's department, however, is a subscriber and member of the intercity radio net. The master reflector transmitter station of this radio network is owned and maintained entirely by Orange County, unassisted financially by any of the participating members. Several other agencies maintain links with the intercity radio net, including the Cities of Los Angeles, Long Beach, Pasadena, Glendale, and Santa Monica; the California Highway Patrol; and the civil defense headquarters for Region 9. As a matter of mutual assistance, the sheriff's communications section exchanges radio messages and communications with city police departments.

On the basis of personnel assigned to the records-identification and communication sections of this division, and the nature of the functions performed, it is estimated that about 70 percent of the total costs of the division may be classified as providing couny-wide service. This means that of the estimated total costs for fiscal 1952 ($499,500), approximately $150,000 may be attributed to services provided in the unincorporated areas of the county. City contributions to this expenditure are estimated in the table below:

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$19,600	$2,880
Salary	130,400	94,800
Total	$150,000	$97,680

[a] Calculated according to fund analysis shown in Table 13.

The Uniform Division. The uniform division is the largest section of the sheriff's department. It contains 40 percent of the total manpower of the department and its estimated expenditures for fiscal 1952 amounted to $2,707,600. The chief function of this division is the provision of police protection in the unincorporated areas, and it is in connection with this function that the most serious inequities as between incorporated and unincorporated urban areas have been alleged to exist.

The uniform division includes four units: the bailiff detail; the transportation detail; the vice detail; and patrol. Bailiffs are provided by the uniform division for the superior criminal and civil courts. This is clearly a county-wide service, necessary for the administration of justice.

The transportation detail requires 98 of the division's personnel. This detail discharges the sheriff's mandatory responsibilities with respect to the conveyance of county prisoners to and between jails and courts, and conveyance of persons assigned to state mental institutions or veterans' facilities. Such transportation functions are performed without regard to

TABLE 16

LOS ANGELES COUNTY

SHERIFF SUBSTATION DISTRICT AREAS, POPULATION, PERSONNEL, PATROL CAR SHIFTS, AND EXPENDITURES

March, 1952

Substation	*Net area in square miles*[a]	*Population*	*Sheriff department personnel*				*Total patrol car shifts*[c]			*Expenditures*[d]	
			Total	*Administrative*[b]	*Detective*	*Police*	*Total*	*2-man*	*1-man*	*1950-51*	*1951-52*
Altadena	9	39,180	26	8	5	13	8	0	8	$129,705	$132,576
East Los Angeles	19	175,469	98	18	24	56	20	11	9	373,715	406,433
Firestone	40	140,884	98	16	22	60	21	10	11	365,656	409,598
Hollywood	4	51,040	33	10	6	17	6	4	2	149,311	160,912
Lancaster	968	16,084[e]	29	7	3	19	7	4	3	112,170	126,259
Lennox	55	121,187	70	15	15	40	15	9	6	316,377	332,745
Malibu	179	6,056[e]	24	7	2	15	6	4	2	95,229	109,336
Montrose	12	30,000	19	7	2	10	7	0	7	92,220	99,677
Newhall	453	10,001[e]	21	7	2	12	5	3	2	95,785	110,496
Norwalk	137	330,000	129	23	23	83	31	19	12	415,563	509,994
San Dimas	178	60,357	44	10	6	28	12	0	12	190,064	180,866
Temple	45	137,039	69	12	14	43	17	0	17	280,172	279,947
Totals	2,099	1,117,297	660	140	124[f]	396	155	64	91	$2,615,967	$2,858,839

NOTES:

[a] Net district areas exclude much of the territory not actually patrolled, such as Angeles National Forest, Santa Catalina Island, San Clemente Island, Sawtelle Veterans' Home, and district territory.

[b] "Administrative" includes captains, lieutenants and sergeants of the uniform division, as well as civilian personnel.

[c] Including day, night and early morning shifts.

[d] Including salaries and wages, maintenance and operation, and capital outlay for all divisions involved. The totals for capital outlays are relatively small: $2,024 and $3,813 respectively. Figures for 1950-51 are actual; those for 1951-52 are estimates.

[e] No population estimates were supplied for these primarily rural substation districts. Census figures for 1950 have been used according to the townships which most closely fit the district boundaries.

[f] Includes 51 juvenile officers.

SOURCE: Special memorandum dated August 15, 1952, from the Los Angeles County Sheriff's Department.

city boundaries, and, like the bailiff function, are necessary to the general administration of justice in the county. A transportation service which is rendered directly to cities without charge (although not a mandatory function of the sheriff, nor vested with a general county interest) is the execution, when requested, of *city* arrest warrants for prisoners who have been taken into custody outside Los Angeles County but within California. This service involves an annual cost to the county of approximately $10,000.

Forty-five uniform division personnel are assigned to the vice detail, which performs duties which are exclusively investigative in nature. If the division's outlays were assigned on a personnel basis, this detail would account for about $160,000 during fiscal 1952. Most of its operations are in the unincorporated areas, but the sheriff reports that assistance is given to all 45 cities upon request, with 36 cities receiving help fairly often. Complete vice investigation service is not provided for any city. Assistance to city departments is most often given to the smaller cities, and only rarely to Long Beach, Los Angeles, Pasadena or Santa Monica, all of which have vice details of their own. On the basis of the very tentative information available, it is estimated that about 80 percent of the services provided by this department relate to the unincorporated areas of the county. This estimate would place the cost of service to the unincorporated areas in the neighborhood of $128,000.

The patrol section of the uniform division employed 541 persons, five of whom were assigned to the sheriff's headquarters, while the remainder were assigned to the 12 sheriff substations. Of the total personnel in this section, 400 were deputy sheriffs and 66 were civilian employees. Figure 23, page 177, shows the location of the 12 substations and the boundaries of their administrative districts. General information relating to district areas, personnel, patrol shifts and expenditures is presented in Table 16. The various unincorporated urban areas and communities of the county are served by the substations listed below.

Substation district	*Unincorporated urban area or community*
Altadena	Altadena
East Los Angeles	East Los Angeles
Firestone	Miramonte-Florence-Graham South Los Angeles (eastern portion)
Hollywood	West Hollywood
Lancaster	Lancaster
Lennox	Baldwin Hills Lennox-Lawndale South Los Angeles (western portion)
Malibu	--------
Montrose	La Crescenta-Montrose
Newhall	Newhall
Norwalk	Lakewood Southeast Area Communities: Bellflower, Downey, Los Nietos, Norwalk, Paramount, Pico, Rivera, Santa Fe Springs
San Dimas	Baldwin Park San Dimas
Temple	Duarte Temple City-Rosemead

The entire costs of the patrol section may be attributed to services essential to law enforcement in the unincorporated areas. No precise cost information is available for operations not solely confined to the unincorporated areas, but the following statement submitted by the sheriff indicates the validity of this assignment of the cost of this section of the department. The sheriff reported that:

> "All unincorporated areas and sections of the county receive 24-hour radio car patrol services, except Catalina and San Clemente Islands and the sparsely populated mountain and desert areas which comprise about 2,552 square miles (out of an unincorporated total of 3,325 square miles). This leaves 773 square miles of heavily populated so-called urban-type areas which receive around-the-clock patrol services from the sheriff's department."

The following tabulation estimates city contributions to the costs involved in the operating in unincorporated areas of the uniform division of the sheriff's department.

Unit and fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
Vice detail		
General	$16,800	$2,470
Salary	111,200	80,800
Total	$128,000	$83,270
Patrol section		
General	$250,500	$36,800
Salary	1,661,600	1,208,000
Total	$1,912,100	$1,244,800
Division total	$2,040,100	$1,328,070

[a] Calculated according to fund analysis shown in Table 13.

Before concluding the discussion of the uniform division, two other activities of the patrol section should be mentioned. These are (1) the enforcement of parking meter and parking ordinances, and (2) highway traffic control.

(1) The following numbers of deputies have been assigned at various substations to the enforcement of parking meter regulations and parking ordinances:

East Los Angeles	2
Firestone	2
Hollywood	1
Lancaster	1
Norwalk	2
Temple	1
	9

It has been the policy of the county to meet the complete cost of parking ordinance enforcement from fines collected for parking violations. To check upon whether this policy was in fact working out, the county surveyed revenues and costs in the West Hollywood area in 1950. The results of this survey showed that the costs of enforcement, including the deputy sheriff's salary, retirement and workmen's compensation, and depreciation and operating costs for a three-wheel motorcycle, amounted to $4,153. The fines for parking violations were $7,800 for the year, leaving a credit balance of about $3,600. Thus there is some indication that this service produces a surplus of revenue over cost.

Purchases of parking meters, the expense of meter maintenance and repairs, and the costs of collecting the coins, all are met from the meter revenues. Net balances are placed in special funds to be used in developing off-street parking facilities in the parking meter areas.

(2) Los Angeles County has a number of traffic ordinances, which the sheriff states are enforced by both his department and the California Highway Patrol. However, the sheriff, i.e., the patrol section of the uniform division, does enforce county traffic ordinances and certain sections of the State Vehicle Code in the unincorporated areas. As a matter of practice, the sheriff's department also answers all accident calls which are referred to it by the public, summons the California Highway Patrol, regulates traffic at the scene of the accident and summons an ambulance when required.

The foregoing analysis indicates that the total of $6,254,900 spent on the operation of the sheriff's department by Los Angeles County in 1951-52 may be distributed in the following manner:

	Estimated percent of total operations	
Division	*County-wide*	*Unincorporated area only*
Civil	100	—
Detective and crime prevention	17	83
Jail and corrections	100	—
Records and communications	70	30
Uniform	25	75
Estimated outlays	$3,242,500	$3,012,400
Percent of sheriff's department expense, 1951-52	51.8	48.2

It is further estimated that of the amount of $3,012,400 spent on operations of particular benefit to the unincorporated areas, city residents contributed approximately $1,961,080, or 65 percent.

Police Protection in the Unincorporated Areas—Some Comparisons. Police protection is one of the major problem areas of concern in this report. It is frequently contended that (1) the level of police protection provided in unincorporated urban areas is higher than in the rural areas and (2) the level of police protection in the unincorporated urban areas is, in many instances, the equivalent to that furnished by city police departments. The material presented in this section is designed to throw some light on these issues, but it must be emphasized that serious limitations exist with respect to the conclusions one may draw from these data. The basic question of what services, in complete detail, specifically constitute and distinguish various ''levels'' of police service has not as yet been satisfactorily answered. In fact, as far as the county sheriff is concerned, it is simply mandatory that he maintain law and order; no provisions are set forth in the law regarding a ''level'' of service necessary to fulfill this mandate.

The trend of crime in the unincorporated areas of Los Angeles County has been sharply and steadily upward. Part I class offenses, the most serious types of crime, show a percentage increase of almost 60 percent over the past five years, and the increase from 1950 to 1951 exceeded 13 percent. The following tabulation of data from the sheriff's annual report for fiscal 1951 shows these trends by major types of offenses.

To deal with this growing volume of crime the sheriff has decentralized his operations by setting up the 12 substations already described. In addition he established extensive patrol car units, many of which perform investigatory and crime prevention functions as well as respond to calls. The total number of cases handled by the sheriff's department during fiscal 1951 and 1952 is shown by substation location in Table 17.

A comparison of the rates of crime in cities and in unincorporated areas is presented below. The Part I offenses per 1,000 population have been calculated for the nine sheriff substation districts which are largely urban in development, and the rates in these unincorporated urban areas are compared with the number of offenses per 1,000 population in adjoining cities.[23] For all nine of the urban substations together the crime rate amounts to 21.3 offenses per 1,000 population, while for all the adjoining cities the average rate is 25.5 per 1,000 population. If the City of Los Angeles is excluded, the city average falls to 22.9 offenses per 1,000 population.

						Percentage change	
Part I class offenses	*1946-47*	*1947-48*	*1948-49*	*1949-50*	*1950-51*	*1949-50 to 1950-51*	*1946-47 to 1950-51*
Totals	**14,071**	15,406	16,971	19,679	22,278	13.2	58.3
Criminal homicide	**28**	36	25	30	34	13.3	21.4
Rape	**268**	339	273	366	325	—11.2	21.3
Robbery	**705**	731	616	724	611	—15.6	—13.3
Aggravated assault	**563**	664	724	867	946	9.1	68.0
Burglary	**4,115**	5,012	5,719	7,002	8,035	14.8	95.3
Grand and petty theft	**6,865**	7,155	8,164	9,294	10,725	15.4	56.2
Auto theft	**1,527**	1,469	1,450	1,396	1,602	14.8	4.9

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[23] Lancaster, Newhall and Malibu substations are not included, since they serve areas which are largely rural.

TABLE 17

LOS ANGELES COUNTY
CASES HANDLED BY LOS ANGELES COUNTY SHERIFF'S DEPARTMENT
1951-52

Classification	Total	Location of occurrence												
		Altadena	*East Los Angeles*	*Firestone*	*Hollywood*	*Lancaster*	*Lennox*	*Malibu*	*Montrose*	*Newhall*	*Norwalk*	*San Dimas*	*Temple*	*Miscellaneous locations*
Total:														
1950-51	88,436	1,976	13,544	14,860	2,507	2,231	9,656	1,369	1,460	2,171	14,303	3,426	6,909	14,024
1951-52	99,928	1,525	14,994	16,077	3,350	2,435	9,720	1,486	1,352	2,581	16,821	3,936	8,663	16,988
Percent change	13.0	—23	11	8	34	9	.7	9	—7	19	18	15	25	21
Murder, felony[a]	28	--------	5	6	--------	1	1	--------	--------	2	6	--------	4	3
Robbery, felony[a]	749	6	187	187	26	6	95	6	8	6	103	22	92	5
Burglary, felony[a]	8,623	138	1,799	1,445	286	176	1,171	157	128	94	1,964	430	814	21
Grand theft, felony[a]	932	11	173	152	42	35	123	14	14	19	187	54	91	17
Petty theft, misdemeanor	10,822	273	2,128	1,466	259	266	1,588	96	193	101	2,806	426	1,173	47
Auto theft, felony[a]	2,053	26	653	350	72	18	286	18	33	12	335	56	188	6
Arson, felony[a]	316	5	31	70	7	5	34	5	3	3	92	26	24	11
Forgery and checks, felony[a]	1,820	9	260	251	80	24	177	19	37	13	576	73	287	14
Rape, felony[a]	322	5	49	65	10	15	50	5	2	5	67	18	25	6
Sex offenses, felony[a]	453	11	89	82	6	11	58	7	5	2	110	18	52	2
Sex offenses, misdemeanor	598	16	43	89	80	1	76	2	11	1	116	22	51	90
Assault, felony[a]	1,272	6	347	347	14	20	81	6	8	8	260	40	133	2
Assault, misdemeanor	1,596	23	342	251	38	21	165	10	11	18	411	110	196	--------
Narcotic drug laws, felony[a]	1,342	10	256	132	50	7	63	9	4	8	104	30	40	629
Vehicle laws, felony[a]	45	2	9	5	1	5	5	--------	--------	--------	3	4	6	5
Vehicle laws, misdemeanor[b]	6,429	149	251	2,452	357	302	1,151	186	15	63	1,221	42	235	5
Drunk driving, felony[a]	5	--------	--------	--------	--------	1	--------	--------	--------	1	--------	2	--------	1
Drunk driving, misdemeanor	739	11	53	183	13	50	52	15	5	32	201	37	68	19
Drunk, misdemeanor	7,112	85	1,596	1,750	251	345	531	73	56	148	1,363	218	669	27
Gambling, misdemeanor	917	5	83	142	70	4	27	1	4	1	54	7	54	465
Warrant cases	24,603	71	1,554	2,494	959	230	988	262	329	1,391	2,138	492	1,201	12,494
Miscellaneous felonies[a]	170	4	40	23	8	4	14	6	2	3	31	6	22	7
Miscellaneous misdemeanors	7,898	194	1,111	1,100	237	239	1,066	180	153	256	1,573	649	1,084	56
Suicide or attempt	572	21	98	74	27	7	75	10	15	7	126	29	81	2
Dead persons	1,260	60	175	199	36	39	149	15	30	20	230	83	179	45
Missing persons	3,519	35	807	687	33	55	497	7	43	18	713	218	402	4
Mental illness	2,988	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	2,988
Vehicle accidents	7,722	145	2,083	1,324	127	361	637	259	153	189	1,027	470	947	--------
Other accidents	650	48	70	128	22	32	100	7	12	36	76	50	63	6
Other noncriminal	4,373	156	702	623	239	155	460	111	78	124	928	304	482	11

NOTES:

[a] Part I class offenses.

[b] Parking citations not included.

SOURCE: Los Angeles County Sheriff's Department.

Sheriff substation and adjoining cities	*Part I class offenses per 1,000 population*
1. Altadena	15.2
Arcadia	22.4
Glendale	17.1
Pasadena	23.5
Sierra Madre	7.4
Weighted city average	20.3
2. East Los Angeles	30.2
Bell	17.7
Los Angeles	26.9
Maywood	20.0
Montebello	13.5
Weighted city average	20.5
Weighted city average, excluding Los Angeles	16.4
3. Firestone	28.4
Bell	17.7
Huntington Park	34.2
Los Angeles	26.9
Lynwood	22.1
Maywood	20.0
South Gate	19.2
Weighted city average	26.6
Weighted city average, excluding Los Angeles	22.9

Sheriff substation and adjoining cities	*Part I class offenses per 1,000 population*
4. Hollywood	13.1
Beverly Hills	8.8
Los Angeles	26.9
Weighted city average	26.6
5. Lennox	24.3
Culver City	30.6
El Segundo	18.0
Gardena	38.0
Hawthorne	32.3
Hermosa Beach	25.0
Inglewood	30.4
Los Angeles	26.9
Manhattan Beach	10.8
Redondo Beach	21.9
Torrance	28.0
Weighted city average	26.9
Weighted city average, excluding Los Angeles	26.8
6. Montrose	14.2
Glendale	17.1
Los Angeles	26.9
Pasadena	23.5
Weighted city average	26.3
Weighted city average, excluding Los Angeles	20.4

Sheriff substation and adjoining cities	Part I class offenses per 1,000 population
7. Norwalk	17.7
Compton	35.4
Huntington Park	34.2
Long Beach	25.6
Lynwood	22.1
South Gate	19.2
Whittier	26.8
Weighted city average	26.4
8. San Dimas	16.6
Azusa	22.8
Claremont	17.0
Covina	13.0
Glendora	14.6
La Verne	10.0
Pomona	25.2
West Covina	15.6
Whittier	26.8
Weighted city average	22.6
9. Temple	16.8
Alhambra	17.8
Arcadia	22.4
Azusa	22.8
El Monte	36.7
Monrovia	16.7
Pasadena	23.5
San Gabriel	11.1
San Marino	3.4
Weighted city average	20.1
Weighted averages:	
Nine urban substations	21.3
36 adjoining cities	25.5
Adjoining cities, excluding Los Angeles	22.9
All cities in Los Angeles County	25.6

The tabulation also shows that in four of the substations in unincorporated urban areas the crime exceeds that shown by at least half of the adjacent cities. These areas were East Los Angeles, Firestone, Hollywood and San Dimas. In the East Los Angeles unincorporated urban area, the number of Part I class offenses per 1,000 population was substantially higher than that shown by any of the four adjoining cities.

It is clear that as measured by the number of Part I class offenses per 1,000 population, the crime rate is just about as high in the unincorporated urban areas of Los Angeles County as it is in the cities. It is of interest to compare the number of personnel used and the expenditure made to meet the incidence of this type of crime in these different incorporated and unincorporated areas of the county. The following table provides comparisons of law enforcement personnel per 1,000 population; personnel per square miles; and per capita expenditures on law enforcement.

TABLE 18

LOS ANGELES COUNTY

EXPENDITURES PER CAPITA; PERSONNEL PER 1,000 POPULATION; AND PERSONNEL PER SQUARE MILE, FOR COMPARABLE LAW ENFORCEMENT FUNCTIONS PERFORMED BY LOS ANGELES COUNTY AND 12 SELECTED CITIES

Comparable cities or sections of Los Angeles	Law enforcement personnel: Per 1,000 population	Law enforcement personnel: Per square mile	Expenditures per capita: 1950-51	Expenditures per capita: 1951-52
Sheriff substation				
Altadena	*.66*	*2.89*	*$3.31*	*$3.38*
San Gabriel	.88	5.29	3.50	–
Whittier	.84	3.50	3.27	–
Whittier [a]	.68	3.50	2.66	–
East Los Angeles	*.56*	*5.16*	*2.13*	*2.32*
Compton	.73	5.38	2.77	–
Gardena	.76	3.96	3.84	–
Hawthorne	.98	6.40	5.31	–
Los Angeles:				
Boyle Heights	.80	1.11	–	6.39
Watts and Green Meadows	.53	5.23	–	4.54
Firestone	*.70*	*2.45*	*2.60*	*2.91*
Huntington Park	.98	10.36	5.46	–
Los Angeles:				
77th Street	.53	5.23	–	4.54
Hollywood	*.65*	*8.25*	*2.92*	*3.15*
Beverly Hills	1.21	6.80	5.55	–
Los Angeles:				
Hollywood	.74	4.34	–	5.72
Lancaster	*1.80*	*0.03*	*6.97*	*7.85*
None				
Lennox	.58	1.27	2.61	2.75
Huntington Park	.98	10.36	5.46	–
Los Angeles:				
77th Street	.53	5.23	–	4.54
Malibu	*3.96*	*0.13*	*15.72*	*18.05*
None				
Montrose	*.63*	*1.58*	*3.07*	*3.32*
San Gabriel	.88	5.29	3.50	–
Whittier	.84	3.50	3.27	–
Whittier [a]	.68	3.50	2.66	–
Newhall	*21.00*	*0.05*	*9.58*	*11.05*
None				
Norwalk	*.39*	*0.94*	*1.26*	*1.55*
Los Angeles:				
San Fernando Valley	.42	0.60	–	4.12
Westchester	.68	2.94	–	6.79
San Dimas	*.73*	*0.25*	*3.15*	*3.00*
Azusa	1.45	3.76	3.51	–
Glendora	1.00	1.79	3.59	–
Temple	*.50*	*1.53*	*2.04*	*2.04*
Alhambra	.74	5.13	2.65	–
El Monte	1.60	5.78	6.75	–
Monterey Park	.83	2.36	3.58	–
San Gabriel	.88	5.29	3.50	–
Weighted Averages				
Primarily urban substations	.54	1.17	2.13	2.32
Primarily rural substations	2.30	0.05	9.43	10.77
Total substations	.59	0.31	2.34	2.56

TABLE 18—Continued

LOS ANGELES COUNTY

EXPENDITURES PER CAPITA; PERSONNEL PER 1,000 POPULATION; AND PERSONNEL PER SQUARE MILE, FOR COMPARABLE LAW ENFORCEMENT FUNCTIONS PERFORMED BY LOS ANGELES COUNTY AND 12 SELECTED CITIES

Comparable cities or sections of Los Angeles	*Law enforcement personnel*		*Expenditures per capita*	
	Per 1,000 population	*Per square mile*	*1950-51*	*1951-52*
All above cities, except Los Angeles	.91	4.78	3.84	–
Los Angeles	1.27	1.70 [b]	–	5.54
All above cities	1.11	2.18 [b]	–	–

NOTES:

[a] Computed on basis of special census taken in May, 1952.

[b] The ratio of law enforcement per square mile for Los Angeles City and for all cities is appreciably lowered due to the inclusion of the San Fernando Valley Division, which administers an area of 212 square miles. If this division is omitted, the ratio for Los Angeles is 4.83, and for all cities is 4.81.

SOURCE: Computed from basic data submitted by city police departments and the sheriff's department. Additional data pertaining to the extent of the police protection provided by the substations have been submitted by the sheriff's department and is included in Table 3, Appendix E, of this report.

According to the data in Table 18, sheriff substations as a group showed fewer law enforcement personnel per 1,000 population and per square mile, and smaller expenditures per capita, than did the combined cities. The figures may be summarized as follows:

Designated law enforcement personnel	*All sheriff substations*	*All comparable cities*
Per 1,000 population	.59	1.11
Per square mile	.31	2.18
Expenditures per capita	$2.34	$3.84 (except Los Angeles) $5.54 (Los Angeles)

It is also of interest to compare the figures for the urban and rural substations. Table 18 shows that the maintenance of law and order in the primarily rural substation areas required more personnel and greater expenditure than in substation areas which were primarily urban. Urban substations had .54 personnel per 1,000 persons, while the rural substations employed 2.30 or better than four times as many. The urban substations employed 1.17 personnel per square mile, while the large areas serviced by the rural substations reduced their figure to only .05 personnel per square mile. In each rural substation one man was responsible for an average of 22 square miles and 434 people, while in each urban substation one man was responsible for an average of 1.17 square miles and 1,851 people. The fact that the urban areas have a higher population density enables one man to protect more people than in the rural areas where tremendous distances must be covered in answering calls for police assistance. The relative expenditure figures show a similar disparity. Urban substations spent $2.13 per capita, while rural substations spent $9.43, or over four times as much. These figures indicate that Los Angeles County was spending much les per capita on law enforcement in the unincorporated urban areas than in the rural areas.

Fire Protection. The areas, population and value of property served and protected by city fire departments, fire districts and the county department of forester and fire warden are shown in the tabulation below.

Unit	*Percent of county area*	*Percent of county population*	*Percent of county assessed valuation*
Unincorporated areas			
Forester and fire warden	49.5	Not available	Not available
U. S. Forest Service	26.0	Not available	Not available
Subtotal	75.5	2.6	3.2
Fire protection districts	6.2	19.4	15.5
Total unincorporated areas	81.7	22.0	18.7
Incorporated cities	18.3	78.0	81.3
County totals	100.0	100.0	100.0

These estimates of the county forester and fire warden show that, although the county and the federal government are responsible for slightly more than three-fourths of the county's total area, this involves only 2.6 percent of the population and only 3.2 percent of property as measured by assessed valuation. In the unincorporated part of the county *alone*, the county and the federal government are responsible for 92.4 percent of the area, 12.0 percent of the population and 3.2 percent of the property. The remaining area and residents of the unincorporated areas are served by eight fire protection districts. As has already been shown in the earlier section on special districts in Los Angeles County there has been a steady increase in the unincorporated area protected by fire districts, and the growth of these districts has kept pace with the development of the unincorporated area. This has meant a decline in the area served by the county fire warden. Figure 24 shows the areas in Los Angeles County served by fire districts and those protected by the county fire battalions.

For fiscal 1951-52 expenditures for the department of county forester and fire warden were budgeted as follows:

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentage*
General	$417,894	$122,591	7.2
Salary	1,515,488	1,570,887	92.8
Salary (retirement)	55,399		
Total	$1,988,781	$1,693,478	100.0

Gross expenditures for county fire protection amounted to $1,988,781. The department received $107,450 for inspection and weed abatement services, and $187,853 for services rendered to the state and federal governments. Thus the net expenditures of the department amounted to $1,693,478.[24]

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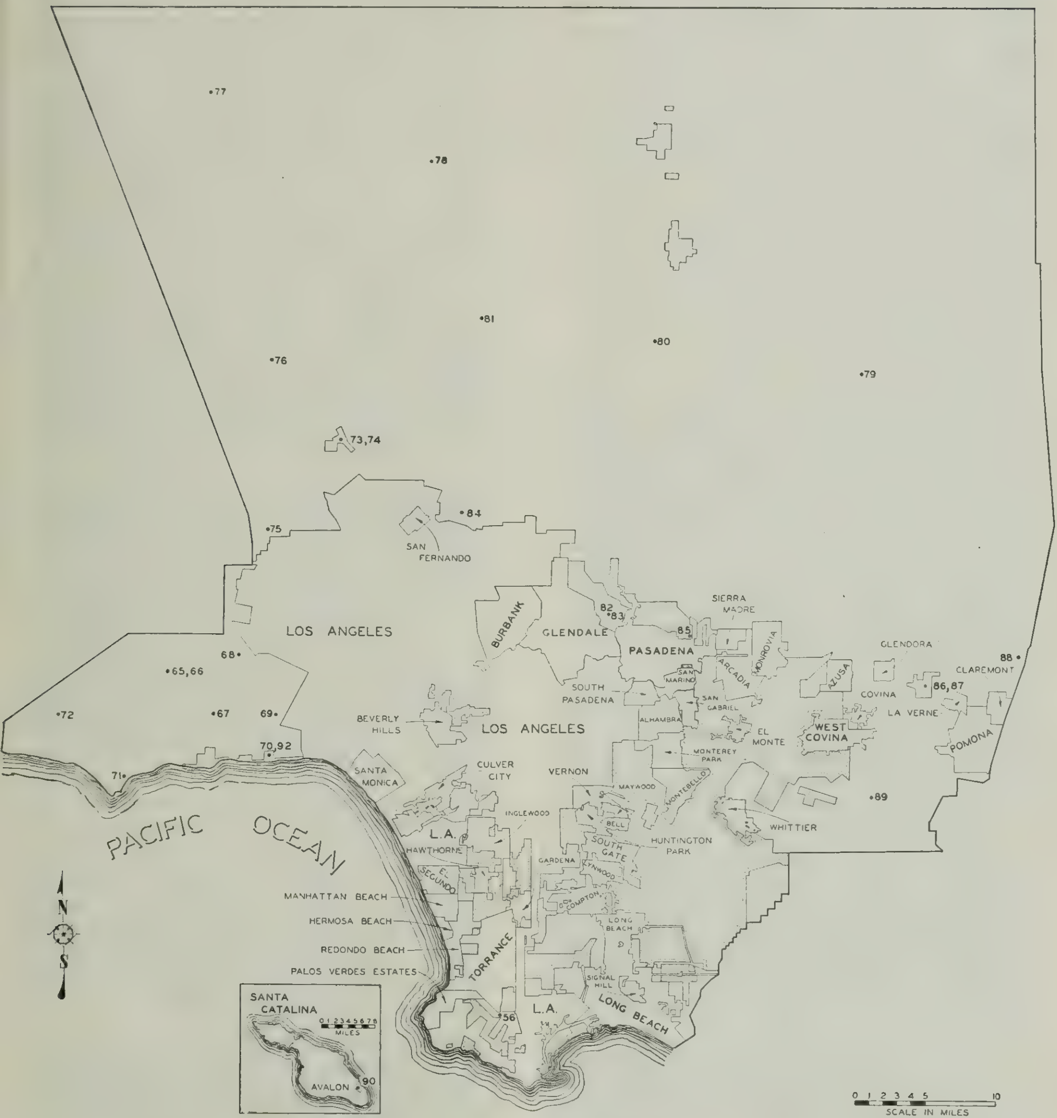
[24] The State, in lieu of providing fire protection through the State Division of Forestry to watershed areas for which it has primary responsibility, makes an annual payment to Los Angeles County for county fire protection services. This payment is determined by a formula and includes a share of the Clarke-McNary money paid directly to the State by the Federal Government.

FIGURE 24

LOS ANGELES COUNTY
FIRE PROTECTION DISTRICTS AND COUNTY FORESTER
AND FIRE WARDEN STATIONS



The duties of the department of county forester and fire warden are set forth in Section 24⅓ of the Charter of Los Angeles County. The paragraphs under that section provide that the forester and fire warden shall be appointed by the board of supervisors and shall manage and control the operations of the department. The county forester and fire warden is also chief engineer of the fire protection districts, the combined organizations being known commonly, but not by statute, as the Los Angeles County Fire Department.

The duties of the department are rather broadly phrased in the charter and relate primarily to the prevention and suppression of two kinds of fires: (1) grass, brush and forest fires in all watershed areas in the county; and (2) structural fires in unincorporated territory outside any fire protection district. The following paragraphs under Section 24⅓ of the charter are of particular importance and relevance to the problem of the type and level of fire fighting service which should be provided by the county department. It should be noted that structural fire fighting in unincorporated areas not served by a fire district is a mandatory (Para. [f]) activity of the county department.

Section 24⅓

"Para. (c). It shall be the duty of the County Forester and Fire Warden and all deputies Forester and Fire Warden to enforce and observe all orders and ordinances of the Board of Supervisors pertaining to forest, brush, and other fires, and all statutes relating to prevention or extinguishment of forest, brush, or grass fires. The County Forester and Fire Warden shall cooperate with the State Forester and the Federal Forest Supervisors in the prevention and suppression of forest fires in the County of Los Angeles, and shall make a yearly report to the board of supervisors on the condition of the forests in Los Angeles County and on the damage by fire to the forests during the year reported.

* * * * * * *

"Para. (e). It shall be the duty of the County Forester and Fire Warden, under the direction of the board of supervisors, to study the fire protection needs of the County, and all unincorporated territory thereof, and advise the board of supervisors with respect thereto, and particularly of the advisability of the formation of any county fire protection district or districts, to seek to interest the inhabitants of any such proposed fire protection district and to aid in its formation; after formation of such districts, to advise the board of supervisors in the purchase of equipment and other property for such districts and to supervise the agents, employees or other persons engaged to fight fires therein, and in general, to have charge of all matters relating to or connected with the administration of such county fire protection districts.

"Para. (f). It shall be the duty of the County Forester and Fire Warden to extinguish structural fires in unincorporated territory not included within any fire protection district. He shall also enforce all statutes, ordinances, and orders of the board of supervisors relating to the prevention and extinguishment of structural fires in such territory. Where a statute, ordinance or order of the board of supervisors provides for the prevention or extinguishment of particular kinds of structural fires or for the inspection or control of particular structural fire hazards and prescribes duties for the county forester and fire warden respecting the same, the county forester and fire warden shall act in accordance with such statute, ordinance or order, but except as so prescribed his duties with reference to structural fires and structural fire hazards shall be as prescribed herein.

"Para. (g). It shall be the duty of the county forester and fire warden to inspect private lands and the buildings and structures thereon for the purpose of determining if a structural fire hazard exists. Where it is found that a fire hazard exists he shall order the owner or person responsible therefor to abate or diminish such hazard, as said county forester and fire warden may deem proper, and he may make recommendations or suggestions to such person for that purpose. * * * It shall also be the duty of the county forester and fire warden to render an annual report to the board of supervisors setting forth the number and full details of the structural fires which he has been called upon to extinguish, the condition of such territory with regard to structural fire hazard and his recommendations for better combatting such fires and for the abating and lessening of such fire hazard.

"Para. (h). The county forester and fire warden shall use such apparatus, equipment, fire fighting personnel and inspection personnel in carrying out the duties set forth in paragraphs (f) and (g) hereof as the board of supervisors may from time to time authorize for such use. Where it is necessary to use the apparatus, equipment or fire fighting force of the fire protection districts to extinguish structural fires in unincorporated territory not included in any fire protection district and where such use is authorized by the state statute creating and governing the county fire protection districts, it shall be the duty of the county forester and fire warden to supervise and direct the use thereof for such purpose. * * *

"Para. (j). It shall be the duty of the county forester and fire warden subject to the orders of the board of supervisors to carry on educational work for the information of the public relative to the prevention of fires and to the conservation of natural resources, and to prepare or cause to be prepared information relating to these subjects and disseminate such information by means of lectures, motion pictures, stereopticon slides or other projection of pictures, displays and exhibits, or by any other appropriate means. He shall also enforce all statutes, ordinances, and orders of the board of supervisors relating to such educational work."

Of further interest to this report is the provision of charter paragraph (e), which imposes upon the fire warden the duty of advising the board of supervisors as to the desirability of forming fire protection districts, and implementing the formation of such districts. In 1950 Los Angeles County adopted the policy of what might be called "automatic" annexation to existing fire protection districts. As outlined in the preceding discussion of special districts in Los Angeles County, whenever a tract map is filed for an area adjacent to an existing fire protection district, the forester and fire warden petitions the board of supervisors to annex the area to the fire district. The forester and fire warden states that this policy has brought all urban areas within fire districts, leaving outside the districts only rural or suburban areas which do not contain communities exceeding 400 persons. The warden's own figure of some 110,000 persons living in areas protected by his department and by federal forest units is rather close to the estimate developed in the population section of this report, that about 120,000 persons reside in the rural areas of Los Angeles County.

To place all of the unincorporated area under the protection of fire protection districts is the stated desire of the department. A statement of the chief administrative officer in the 1951-52 budget message to the board of supervisors provides a clear expression of this policy:

> "It has long been recognized that the activities of the forester and fire warden should tend to decrease as the fire protection districts increase their scope of operations. This is true because as the unincorporated area of the county becomes developed with new home and industry, the primary nature of the fire hazard changes, in many localities, from watershed to structural.
>
> "In line with this reasoning, the recommended budget provides for the elimination of Mountain Battalion No. 7, which is located in the La Canada area. The headquarters station, which houses two engine companies, is to be converted to a structural fire fighting facility and charged to the Consolidated Fire District so that the entire cost of the fire protection services in La Canada will be borne by the residents of that area."

The department of forester and fire warden is organized into seven bureaus and divisions. These are shown in the tabulation below, along with the number of personnel and the percentage of total expenditures for current operation which each accounts for.

Unit		*Number of personnel*	*Percent of total expenditures for current operation 1950-51*
Administration:			
Supervisory	16		
Clerical	42	58	3.0
Mountain battalions		211	49.9
Fire prevention bureau		19	2.4
Weed abatement section		77	6.9
Forestry division		12	2.8
Construction and research division		97	20.8
Supply and transportation division		36	14.2
Total		510	100.0

According to the forester and fire warden many of the personnel work on fire district matters, and the costs of such services provided to the districts are fully recovered by means of departmental service orders billed to the districts. For example, one-half of the chief's salary and "equitable proportions" of other supervisory officers' salaries are paid by fire districts. Ten of the 14 battalion chiefs included under the supervisory heading are in charge of fire protection districts and are paid by the districts. In addition, three dispatchers in the mountain battalions; the "greater part" of the fire prevention bureau's costs; and services provided to the districts by the construction and research division, supply and transportation division, and departmental clerical help, are charged to the districts. Departmental overhead charges are included in the amounts billed. The department's annual report for 1950-51 showed a total of more than $400,000 received from the districts for such services, amounting to 23 percent of the total departmental outlays for salaries, wages, maintenance and operation.

Except for certain operations of the fire prevention bureau and the mountain battalions, such costs of the department's units as are not recovered through charges to fire protection districts for services rendered may be classified as county-wide in nature since they relate to fire protection, forestation or soil conservation in watershed areas, or to the county-wide civil defense program. An estimated $325,000 of the total outlays of $700,000 for the administration, construction and research, and supply and transportation divisions is paid by the fire protection districts.

The fire prevention bureau performs inspections of commercial, industrial and residential properties, as well as dumps, incinerators and the like, for the purpose of checking compliance with fire safety regulations. Inspections are made at the request of various agencies, including county departments, fire protection districts, and even state and federal authorities. The bureau also checks building plans in cooperation with the department of building and safety, to insure conformance with fire safety requirements, and carries on a certain amount of educational work in fire prevention. The weed abatement section is administered by the fire prevention bureau, but it may be considered as an individual operation in the sense that it is practically supported through revenues paid into the general fund for lot-clearing services. Its crews often assist in fire control operations, particularly for grass fires during the fire season. With the exception of the weed abatement section and a small percentage of the fire prevention work performed in watershed areas, it appears that the bureau's work is of immediate and direct benefit to the unincorporated areas, including the fire protection districts. By applying the bureau's expenditure proportion of 2.4 percent of 1950-51 actual expenditures to the department's budgeted expenditures of $1,988,781, it may be calculated that the 1951-52 expenditures of this bureau amounted to about $48,000. Deducting the $29,000 estimated as paid by fire districts leaves a balance of $19,000 representing departmental operations outside cities and fire districts.

The mountain battalions are the units most often mentioned whenever departmental operations are criticized with respect to the distribution of fire protection services among residents and areas of the county. There are five such battalions, with a total of

23 county fire stations (located as shown in Figure 24), and their expenditures aggregated about $992,000. For the most part these battalions are located in the mountainous areas. Only the South Hills Station (No. 89) and the Rolling Hills Station (No. 56) are located on the coastal plain south of the mountain and hill areas. The latter, located at the southern tip of the City of Torrance, is manned by fire protection district personnel, and the costs are shared between the county and the district. No stations are within incorporated cities, although one engine company is maintained at Olive View Hospital, inside Los Angeles. Another special engine company and crew is maintained at Harbor General Hospital, in the Willowbrook-Dominguez unincorporated area.

These battalions have from 2 to 10 engine companies, involving from 4 to 14 men per company. Altogether the battalions have some 232 full-time personnel, 53 engines and 12 utility vehicles. Water-supply equipment owned by the county includes a six-inch line, with 91 hydrants, extending about 11 miles along the Topanga Canyon Road, supplied by a 350,000-gallon catchment basin. In addition there are a number of 10,000-gallon catchment basins, each with a hydrant, as well as numerous water tanks. The basins and tanks are located at strategic places in the watershed and are for the purpose of supplying water to county tank trucks. With respect to the locations of county fire stations and the type of equipment operated by the county, the general emphasis is on meeting the requirements for watershed fire protection. The fire warden states,

> ''Ours is not a structural fire department. We do not have adequate water mains or hydrants. We have no aerial trucks. Our pumpers, other than those performing fire suppression under contract in F. P. D. (fire protection district) area, do not carry hose larger than 1½-inch diameter. Our auxiliary crews cut fire lines, back fire, cold trail, and perform other operations of watershed fire control, but do not extinguish structural fires. Approved response distance for structural protection must not exceed ¾, 1½, or 3 miles, depending upon the intensity and character of structural development; in any case, 3 miles is the maximum.''[25]

The distance-response standards mentioned in this quotation are used by the fire warden in administering fire protection district coverage in the more densely settled areas, so as to meet the Board of Fire Underwriters' requirements. Outside the fire districts no such standard is used. The department attempts to meet a maximum response time of 15 minutes in all watershed areas.

In addition to the prevention and suppression of fires in the unincorporated areas (outside fire districts), the engine companies of the mountain battalions do make responses inside cities and fire districts under various types of formal and informal agreements. Pursuant to the State War Powers Act, the department has written agreements with 30 cities and oral agreements with the remaining 15 cities providing for mutual assistance. Responses on a mutual aid basis are made to all borderline fires in cities, U. S. Forest Service areas, fire protection districts, and adjoining counties. The department also responds immediately to areas designated as initial action zones, along boundary lines in the watershed area. These zones are along the boundaries of Los Angeles, Pasadena, Glendale, Burbank, Whittier, the national forests and adjoining counties. In turn, these agencies respond to calls in the county area. The department makes a considerable number of responses in fire protection districts on a strict contract basis, pursuant to which the districts reimburse the county. In addition to such responses as are made under the preceding agreements, the fire warden reports that the department responds to calls anywhere in the county, upon request.

Table 19 shows the responses of county fire battalions to various types of fires in various classifications of the county area for fire protection purposes. The number of responses is shown both for 1950-51 and 1951-52, although a breakdown by type of fire in particular areas was not available for the latter fiscal year.

Responses to calls made under mutual aid agreements or contractual arrangements are compensated for by payment or by reciprocal responses. Thus no question can seriously be raised about who bears the costs of these specific fire protection services. Questions relating to type and level of fire protection service can, however, be raised with respect to so-called ''structural fires.'' Prior to 1949-50 any combination watershed-structural fire involving one-tenth acre or less was classified as ''structural.'' This arbitrary classification has been replaced by the view that any fire involving a watershed is a watershed fire, regardless of other involvement. Furthermore, the department considers that *any* type of fire in a watershed is a threat to the watershed and must be extinguished, even if it involves only a structure. The chief administrative officer, in a report to the board of supervisors dated February 19, 1951, made the following statement with respect to the view that protection furnished by the mountain battalions is of purely local benefit.

> ''(a) The Forester and Fire Warden has no personnel or equipment over and above that required for protection of the watershed, irrespective of the existence of structures in watershed areas.
>
> ''(b) The Forester and Fire Warden is obliged to protect the watershed, irrespective of the cause of a fire. If a mountain cabin is on fire, the Forester and Fire Warden must suppress that fire without waiting to find out whether the fire will spread to the forest.
>
> * * * * * * *
>
> ''(d) It is admitted that some structures protected by mountain battalions are located in areas where a fire could not reasonably be considered as endangering the watershed. The mountain battalions do answer such calls, thus causing some very slight extra expense in vehicle operation and depreciation.
>
> ''(e) The Board of Fire Underwriters does not allow a fire insurance credit on dwellings in Mountain Battalion areas. This means it does not recognize the existence of adequate structural fire-fighting

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[25] Statement prepared for the committee by the Los Angeles County Forester and Fire Warden, August 19, 1952.

TABLE 19

LOS ANGELES COUNTY
RESPONSES BY UNITS OF THE COUNTY FIRE BATTALIONS, BY TYPE OF FIRE AND BY AREA
1950-51 and 1951-52 [a]

Location	Type of fire: Watershed[b]		Property[c]		Structural		Combination structural and property		Miscellaneous[d]		Total responses		Percent of total calls in each location	
	1950-51	*1951-52*	*1950-51*	*1951-52*	*1950-51*	*1951-52*	*1950-51*	*1951-52*	*1950-51*	*1951-52*	*1950-51*	*1951-52*	*1950-51*	*1951-52*
Forester and fire warden area														
Number	393	291	202	213	95	83	15	7	66	117	771	711	70.0	60.3
Percent of total	51.0	40.9	26.2	30.0	12.3	11.7	1.9	1.0	8.6	16.4	100.0	100.0		
Incorporated cities														
Number	32	[e]	12	[e]	6	[e]	--	[e]	5	[e]	55	66	5.0	5.6
Percent of total	58.2		21.8		10.9		--		9.1		100.0	100.0		
Fire protection districts														
Under contractual arrangements														
Number	23	[e]	54	[e]	30	[e]	--	[e]	10	[e]	117	160	10.6	13.6
Percent of total	19.7		46.2		25.6		--		8.5		100.0	100.0		
Under mutual aid agreements														
Number	53	[e]	33	[e]	19	[e]	--	[e]	13	[e]	118	201	10.6	17.1
Percent of total	44.9		28.0		16.1		--		11.0		100.0	100.0		
United States Forest Service and adjacent counties														
Number	28	[e]	6	[e]	4	[e]	--	[e]	4	[e]	42	40	3.8	3.4
Percent of total	66.7		14.3		9.5		--		9.5		100.0	100.0		
All locations														
Number	529	[e]	307	[e]	154	[e]	15	[e]	98	[e]	1,103	1,178	100.0	100.0
Percent of total	48.0		27.8		14.0		1.4		8.8		100.0	100.0		

NOTES:
[a] Breakdown by type of fire was not available for 1951-52.
[b] Includes forest, brush, and grass fires.
[c] Includes vehicle, property, rubbish, and combinations thereof.
[d] Includes false alarms, rescues, gas and oil leaks, vehicle accidents, and the like.
[e] Data not available.

SOURCE: Data from the Los Angeles County Department of County Forester and Fire Warden.

facilities. This indicates that the existing facilities are provided basically for watershed protection only.''

If the views set forth in (a), (b) and (e) above are accepted, then it appears that what structural fire fighting is carried on by the county is not of special benefit to particular county areas by providing a higher level of fire protection service to residents of these areas. It is instead largely a part of watershed protection and hence benefits all county residents.

A more accurate impression of the extent of structural fire fighting performed by the county in areas outside other fire-fighting jurisdictions can perhaps be obtained from studying the ''suppression costs'' of structural fires as a proportion of all suppression costs. Every individual fire is charged with the costs of direct labor and other direct expenditures, the total being labeled the ''suppression cost'' of that fire. The largest element in ''suppression cost'' is labor time. The suppression costs associated with structural fires have not exceeded $1,859 per year during the past eight fiscal years. As is shown in Table 20 the ratios of these total structural suppression costs to all suppression costs have averaged less than 5 percent for the entire period. This is significantly less than the 14 percent figure shown in Table 19 as the proportion of structural fire responses to total responses. The fire warden further states with respect to these figures, that

''* * * neither tells the whole story. We reiterate that a structural fire in the watershed is a menace to the watershed we are obliged to protect. Of course, there have been specific instances in which we have extinguished structural fires that could not have spread. We have our humanitarian obligations, as do the city departments.'' [26]

TABLE 20

LOS ANGELES COUNTY
SUPPRESSION COSTS RECORDED FOR STRUCTURAL FIRES AND FOR TOTAL FIRES
1942-43 to 1949-50

Year	*Structural*	*Total*	*Percent of structural to total*
1942-43	$667.90	$23,251.44	2.873
1943-44	1,210.39	11,567.38	10.464
1944-45	1,273.08	16,575.53	7.680
1945-46	1,171.33	27,743.09	4.222
1946-47	1,410.87	27,294.02	5.169
1947-48	1,859.04	31,992.44	5.811
1948-49	1,149.99	32,385.56	3.551
1949-50	1,007.16	33,326.85	3.022
Total	$9,749.76	$204,136.31	4.776

SOURCE: Data from the Department of County Forester and Fire Warden, Los Angeles County.

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[26] Statement prepared for the committee by the Los Angeles County Forester and Fire Warden, August 19, 1952.

By way of summarizing the foregoing analysis of the fire protection services of Los Angeles County, it seems reasonable to estimate that of the total budgeted expenditures of the department of forester and fire warden of $1,988,781 approximately $119,000, or 6 percent, supports operations which are of direct benefit to areas and taxpayers outside cities and fire protection districts. This latter amount is estimated on the basis of $19,000 for fire prevention bureau activities and $100,000 for mountain battalion structural fire fighting. The amount of $100,000 may certainly be challenged as an exaggeration of the annual cost of structural fire fighting of benefit only to those living outside cities or fire districts, but in the absence of reliable data concerning the extent to which such operations are vital to watershed protection, this guess discounts both the points of view held by the county and other local subdivisions with respect to the annual tax subsidy involved. This estimate also more than accounts for the costs of those activities which are performed for the mountain battalion in connection with structural fires by the construction and research division and the supply and transportation division. The tabulation below estimates the amounts contributed by city residents toward the provision of these fire protection services to areas outside cities and fire protection districts. City payments are estimated to amount to $81,520.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$8,600	$1,260
Salary	110,400	80,260
Total	$119,000	$81,520

[a] Calculated on the basis of fund analysis shown in Table 13.

As a postscript to the above analysis concerning the *extent* to which the department of forester and fire warden provides county-wide services, some brief comments may be made with respect to the *level* of fire protection service provided in the unincorporated areas outside fire protection districts. All of the unincorporated area of Los Angeles County which lies outside fire protection district boundaries is listed as Class 10 by the Board of Fire Underwriters. This means, of course, that the rating bureau of the board does not recognize structural fire protection anywhere within the fire warden area. The chief engineer of the Board of Fire Underwriters states:

> "A section of the (Los Angeles) county fire department is maintained by county funds, but this covers primarily mountain and watershed areas, and we recognize it for protection of growing crops only."[27]

Obviously the structural protection actually provided by the fire warden is not equivalent to that received by residents of either the fire protection districts, all of which have bureau ratings of eight or lower or the cities, all of which have ratings of seven or lower.[28]

Another comment made by the fire warden comparing the protection level in fire districts with that outside, is reproduced below:

> "That acceptable structural fire protection is not provided (in the fire warden areas) is attested by the following, which is quoted from an intradepartment study made two years ago relative to redesigning our alarm reports:
>
> > 'It is quite understandable that the loss per structural (and combination structural) fire in the mountain battalions would be high because sometimes one fire burns many structures. * * * An investigation was made of the averages on the basis of dwelling and private garage fires. (A study of structual fires * * * some years ago disclosed that these two occupancies are the only ones showing nearly uniform characteristics in frequency and average loss. They are not subject to distortion by exceptional losses or sporadic occurrence as are all of the others). Over a period of seven years, 1943-44 to 1949-50, the average losses per fire were:
> >
> > | | *Dwellings* | *Private garages* | *All occupancies* |
> > |---|---|---|---|
> > | Fire warden areas | $2,503 | $1,538 | $3,200 |
> > | Fire district areas | 634 | 694 | 1,233' |

These data indicate that the longer response time and less suitable equipment in the fire warden areas result in a higher loss per structural fire.

These comments indicate that in the opinion of the Chief Engineer of the Board of Fire Underwriters, and the county forester and fire warden, structural fire protection as provided by the mountain battalions in the fire warden areas is considerably less than the structural fire protection provided by the fire protection districts and the cities of Los Angeles County in their respective areas.

THE POUND DEPARTMENT. The Los Angeles County Pound Department is the final item discussed within the general budget category of protection to persons and property. Expenditures by fund in the 1951-52 county budget, are shown below:

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentage*
General	$43,093	$21,143	16.7
Salary	105,364	105,364	83.3
Total	$148,457	$126,507	100.0

Gross budgeted expenditures amounted to $148,457. These expenditures were offset by direct charges to individuals for services rendered, and for the enforcement of animal regulation ordinances, on a contractual basis, in the Cities of Whittier and Montebello. Direct charges to individuals amounted to $18,450, while the contracts with Whittier and Montebello produced $3,500 in revenue, or a total of $21,950. These credits exclude revenues from license fees, estimated at $225,000 in 1951-52, although some part of these license fees may properly be deducted from the costs of operating the pound department, to compensate for expenses with respect to collecting dog license fees and enforcing the provisions of county licensing ordinances. Ten animal license inspectors make a house to house canvass of the entire unincorporated area, issuing licenses directly to owners, or leaving notices to pay.

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[27] Letter received from the Chief Engineer of the Board of Fire Underwriters, August 28, 1952.

[28] West Covina, which has a rating of 10, pending reclassification, is the only exception. Current Board of Fire Underwriters' ratings for all cities and fire districts are shown in Appendix E, Table 4.

The Los Angeles County Pound Department was created by the board of supervisors in 1937, for the purpose of preserving the public peace, health and safety. Its functions are as follows: impounding of stray and unwanted animals; collection of all dog license fees in the unincorporated area of the county; investigation of cases involving inhumane treatment of animals; control of animal rabies by the enforcement of the dog leashing ordinance; and operation of the county-owned animal shelter and supervision of humane societies under contract to the county.

Ten pound department trucks are used in carrying out the first four functions, each truck being operated by a deputy poundmaster assigned to patrol a particular area. Except for the Cities of Whittier and Montebello, which receive animal regulation services from the county pound department on a contract basis, all areas patrolled by the department lie outside incorporated cities.

To care for animals impounded pursuant to county and contract-city ordinances, the department operates the county-owned Rancho Animal Shelter located at Hondo, just southwest of Downey. In addition, the department contracts with three humane societies in Pasadena, San Gabriel and Los Angeles, which not only handle animals brought in by the department's deputies or by local residents, but also perform pickups with their own personnel. During 1950-51 these societies handled over 22,000 animals from the unincorporated areas assigned to them, while the county shelter handled almost 28,000.

All the operations of the pound department, with the exception of the services rendered to Montebello and Whittier under contract, are apparently performed in the unincorporated areas of the county. Animal regulation is extended throughout the unincorporated area, including Antelope Valley. With respect to the contracts between the county and the Cities of Montebello and Whittier, it is interesting to note that these cities to become eligible for pound contracts have had to adopt animal regulation ordinances containing the same basic provisions as the present county ordinances. Thus the county performs the same animal regulation functions inside these two cities as it does in the unincorporated areas.

The contributions made by city residents to the estimated net costs of $106,507 are estimated as follows:

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$17,800	$2,600
Salary	88,707	64,500
Total	$106,507	$67,100

[a] Calculated according to the fund analysis shown in Table 13.

The net expenditure amounts shown in the preceding tabulation were further reduced in the amount of $20,000, which it is estimated was collected from activities with respect to dog licensing and the enforcement of county license ordinances.

Health and Sanitation. Public health service in Los Angeles County is provided by the county health department and the health departments of five incorporated cities. The county health department administers a program of preventive medicine throughout the entire unincorporated area and inside the 40 cities which have requested public health services. In addition to the "standard" health services, 22 of the 40 cities served by the county are also receiving rodent control services under contractual agreements. The five cities of Beverly Hills, Long Beach, Los Angeles, Pasadena and Vernon have established their own health departments, rather than using the county health service. Some mutual exchange of health services does take place, however, between these five cities and the county, largely with respect to clinic services for the benefit of residents of one jurisdiction who happen to be much nearer the clinic located in the other jurisdiction. These reciprocal services are believed to cancel out as between the city and county health departments.

On the basis of a 1950 count, the county health department serves 1,796,521 persons, or 43 percent of the total population. Of those served, 871,926 lived in unincorporated areas and 924,595 persons resided in the 40 cities. As of 1951 the department estimated that the number served from each of these types of areas amounted to about 940,000 persons. Figure 25 shows the growth in the areas and population served by the county health department during the period from 1915 to 1951.

Authority for counties to provide health services inside cities is found in Sections 476 to 478 and 480 to 482 of the Health and Safety Code. The first group of sections provides that the county, when requested by the city, shall enforce inside the city all state statutes, orders, rules and quarantine regulations. The second group provides that a city may contract with the county for *county* enforcement of city ordinances relating to public health and sanitation. In Los Angeles County 38 of the cities are served by the county health department pursuant to all of the sections cited. The Cities of Gardena and Palos Verdes Estates, however, receive county health services pursuant only to the first group of code sections. With respect to any *city* ordinances enforced by the county, the costs of such enforcement are recovered through direct charges.

In addition to its relationships with the cities, as outlined above, the county health department administers 14 garbage disposal districts in the unincorporated areas. The county charges these districts for time and mileage expended by the health department sanitarian for administrative services, but no general overhead is included.

The problem with respect to public health services differs somewhat from those discussed for other county departments, since so many cities are served on the same basis as the unincorporated areas. Thus only the residents of the five cities which are not served by the

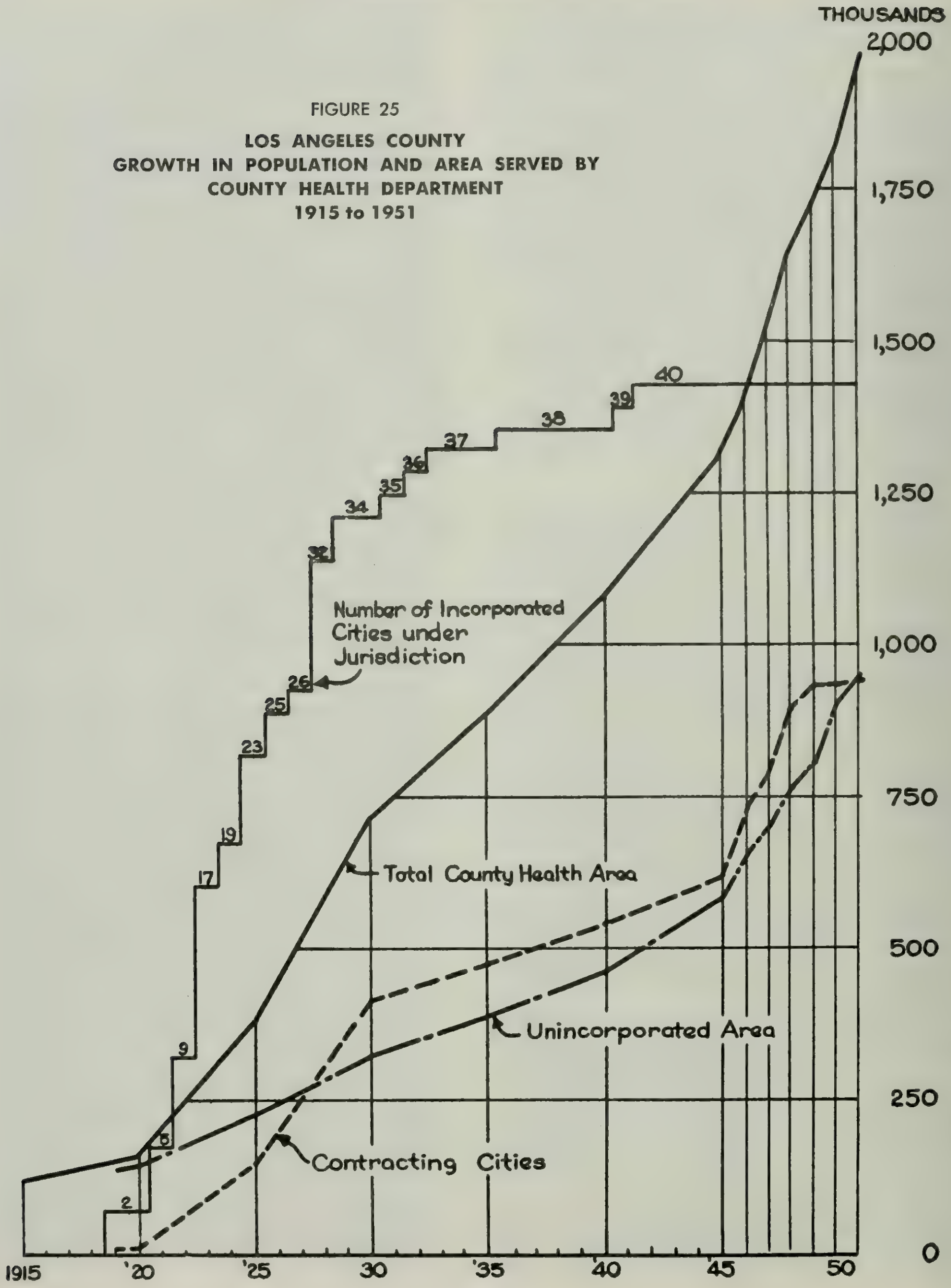
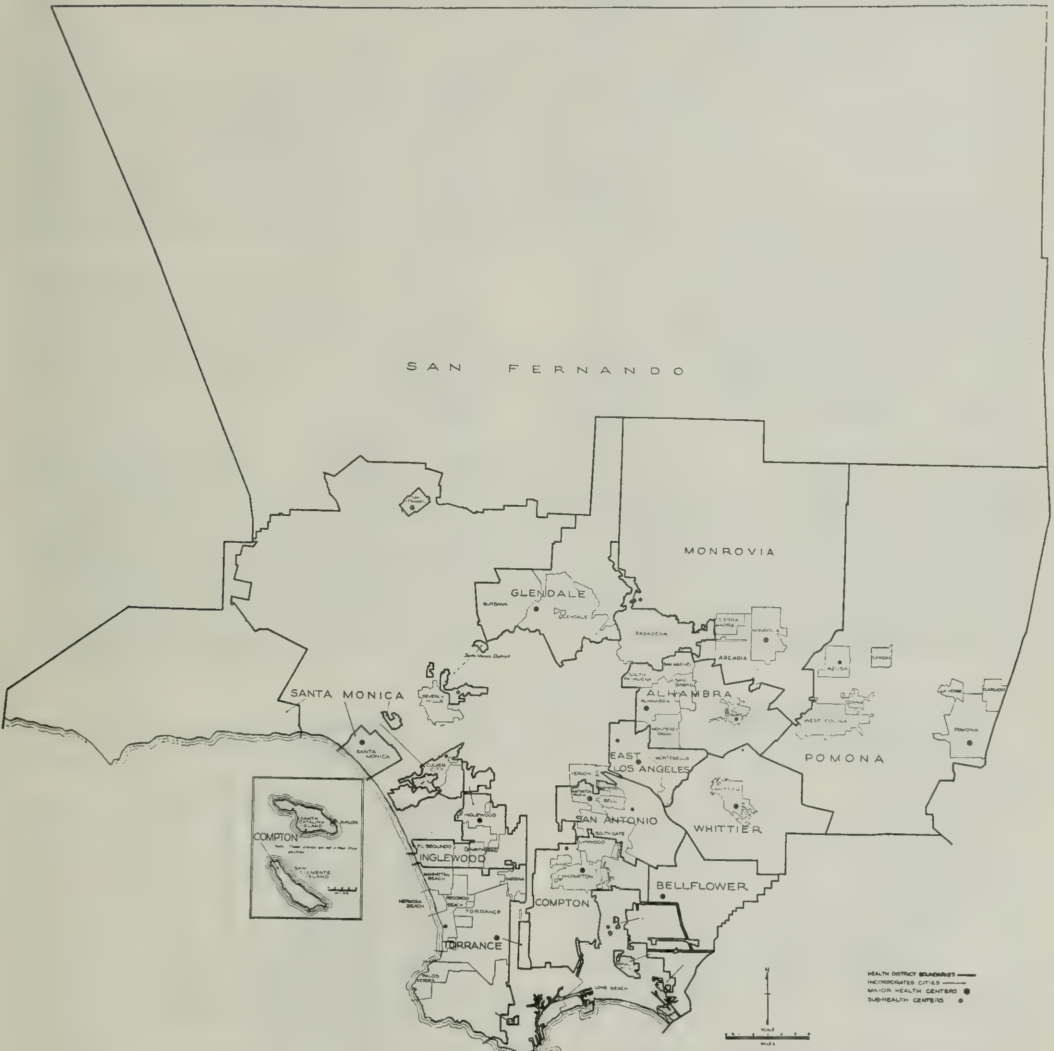


FIGURE 25

LOS ANGELES COUNTY
GROWTH IN POPULATION AND AREA SERVED BY
COUNTY HEALTH DEPARTMENT
1915 to 1951

FIGURE 26

LOS ANGELES COUNTY
HEALTH DISTRICTS
1952



county health department contribute to its support as well as to the support of their own health departments.

The Los Angeles County Health Department is administered by a county health officer appointed by the board of supervisors. The duties of the health officer are set forth in Sections 451 to 457 of the Health and Safety Code. Primarily, his duties consist of enforcing in the territory under his jurisdiction: (1) orders and ordinances of the board of supervisors, pertaining to the public health and sanitary matters; (2) orders, quarantine and other regulations, and rules prescribed by the State Department of Public Health; and (3) statutes relating to public health.

The health department is divided into two units: (a) the central office unit, which handles administrative matters; and (b) the health district unit, which serves as the outlet for public health services to the community. Operating out of the central office unit are the health officer, assistant health officer, business manager, bureau directors and division and section chiefs. The health district unit is divided into 13 health districts, the boundaries of which are shown in Figure 26. Each district is administered by a district health officer and employes central office services where necessary to the performance of its local health functions. As shown in Figure 26, every district has a major health center, and some have one or two health subcenters.

Of the 13 major health centers, 11 are located inside incorporated cities, while the other two, Bellflower Health Center and East Los Angeles Health Center, are located in unincorporated territory. Seven of the 12 subcenters are inside cities and five are outside. This distribution of health facilities conforms very closely to the distribution of the population throughout the areas served by the health department, and is obviously planned on the basis of health needs, without regard to the boundaries of the cities involved.

Total budgeted expenditures for health and sanitation in 1951-52 amounted to $3,899,666. These expenditures, by general classification, are shown below.

Health department	$2,783,721
Health department—public health fund	409,320
Air pollution control district	664,889
Air pollution control district—hearing board	41,736
Total	$3,899,666

This analysis is concerned only with the expenditures of $2,783,721 for the operation of the county health department. Almost 700 persons were required to carry out the activities of the department in 1951. Table 21 shows the distribution of health department personnel in 1951 by various classifications among the 13 health districts. Central office personnel are not included in this table. The table also shows expenditures for each district as well as the population served by various district units in 1951.

Expenditures for the health department in Los Angeles County cover a multitude of public health services. The scope of the operations performed by the department are perhaps best shown graphically. Figure 27 presents a funtional organization chart of the Los Angeles County Health Department as of July 1951.

While gross budgeted expenditures for fiscal 1952 amounted to $2,783,721, revenues from various types of health inspections were expected to reach $51,400, and cities receiving county health services were expected to pay approximately $40,000 to the county department. These revenues thus reduced the gross expenditures of the health department to about $2,692,321, of which $427,078 was charged to the general fund and $2,265,243 was charged to the salary fund. It is interesting to note the extremely small amounts involved in the enforcement of city ordinances. In fact, it

TABLE 21
LOS ANGELES COUNTY
DISTRIBUTION OF HEALTH DEPARTMENT PERSONNEL,[a] POPULATION SERVED, AND EXPENDITURES OF THE DEPARTMENT, BY HEALTH DISTRICT
1950-51

Number of positions	*Position*	*Alhambra*	*Bellflower*	*Compton*	*East Los Angeles*	*Glendale*	*Inglewood*	*Monrovia*	*Pomona*	*San Antonio*	*San Fernando*	*Santa Monica*	*Torrance*	*Whittier*
70	Physicians[b]	3	1	2	4	4	3	1	1	4	1	4	2	2
10	Dental	2	--	1	1	--	1	1	1	1	--	1	1	--
181	Public health nursing[a]	14	9	15	19	12	11	9	10	18	10	15	11	7
72	Sanitarians	10	4	8	7	8	5	3	2	9	--	8	6	2
33	Medical social service	4	2	2	4	2	2	2	2	4	2	2	3	2
7	X-ray service[d]	1	--	--	3	1	--	--	--	--	--	--	--	--
24	Vital records	2	1	2	1	3	2	2	2	2	2	3	1	1
73	Clerical	8	4	6	9	4	5	4	6	7	5	6	5	4
32	Custodial	3	2	2	5	4	3	1	1	3	2	3	2	1
502	Total	47	23	38	53	38	32	23	25	48	22	42	31	19
Expenditures, 1950-51[e]		$173,777	$86,330	$149,274	$191,875	$141,548	$118,633	$81,151	$100,130	$184,777	$91,893	$154,554	$117,577	$80,031
Population served, 1951[f]		248,646	123,663	171,888	129,470	206,558	156,390	115,845	126,860	230,246	41,516	129,999	141,481	100,809

NOTES:

[a] Certain personnel in the physician, dental, nurse and sanitarian classifications are shown as headquartered in particular districts. Functionally, every district is served by personnel of certain classifications within these groups.

[b] Thirty-eight of the total number of positions serve all districts.

[c] Twenty-one of the total number of positions serve all districts.

[d] Two X-ray technicians serve all districts.

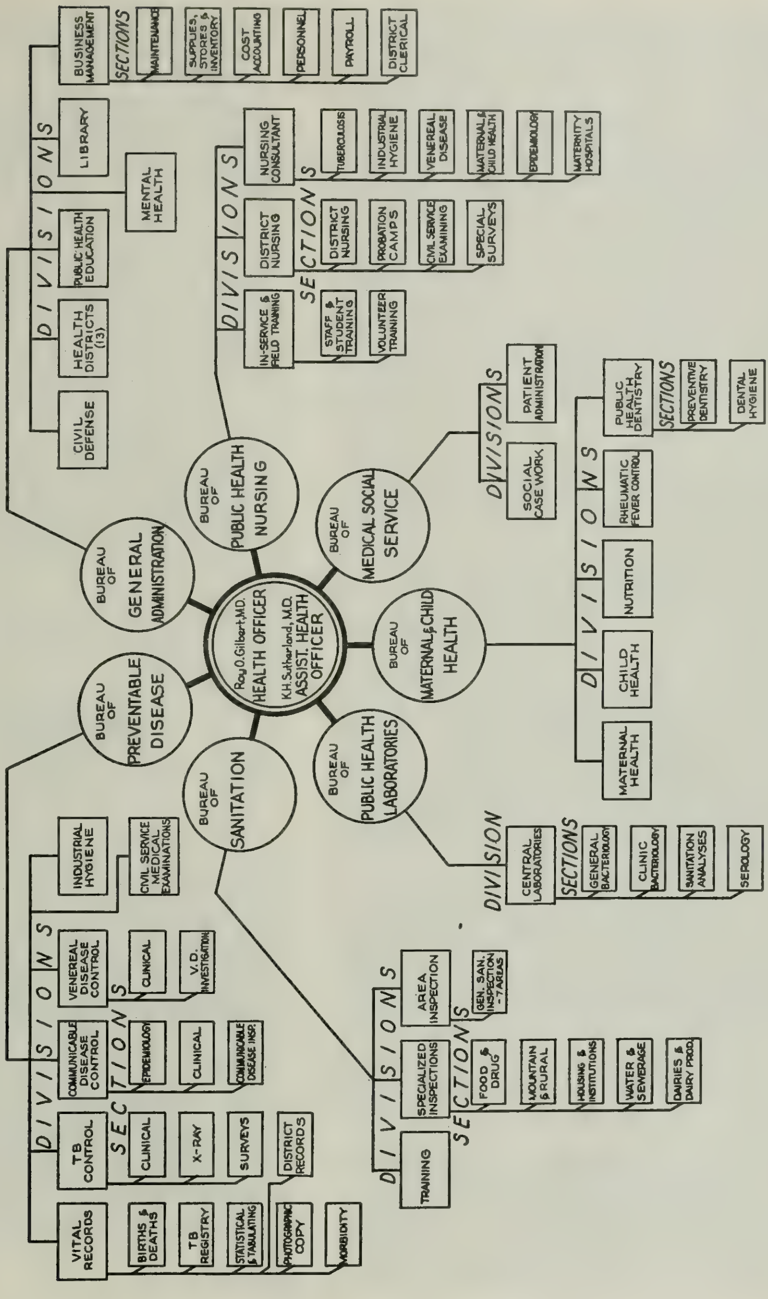
[e] Total expenditures in fiscal 1951 amounted to $1,671,650.

[f] Estimated.

SOURCE: Data from the Los Angeles County Health Department.

FIGURE 27

LOS ANGELES COUNTY
FUNCTIONAL ORGANIZATION CHART OF THE COUNTY
HEALTH DEPARTMENT
July, 1951



is estimated by the county health officer that the cities served by the county health department obtained health services at approximately one-sixth of what they would have cost if they had been locally provided.

With minor exceptions, all the functions indicated in Figure 27 are performed on a "standard" basis throughout the unincorporated areas and inside the 40 cities served by the county health department. Moreover, the resources of the department are continuously adapted to the changing needs of various areas. The activities in fiscal 1951 of the bureau of maternal and child health provide a good example of the manner in which facilities are shifted to meet needs: "Child health conferences conducted by part-time pediatricians were regularly held in 66 different locations in the county. Approximately 300 such sessions were held each month. It was possible to establish conferences in four new locations, but only by curtailing services elsewhere. El Segundo, Norwalk, San Dimas and Palmdale were the new localities. Both need and community requests were the deciding factors in these changes."[29] The only significant exceptions to the "standard" health service program occur in the disaster relief plan, the rodent control program and in some aspects of the department's school health program.

The planning and administration of the disaster local public health and first aid service, a part of the Los Angeles County disaster relief authority, is the responsibility of the county health officer, pursuant to Los Angeles County Ordinance No. 5582, September 26, 1950. The intention of this ordinance is that such planning and administration should be on a countywide basis, integrating whatever facilities may be available to meet emergency needs. The initial development and organization of such a plan consumed a significant amount of the department's time, although it is currently thought that only two or three full-time departmental employees will need to be exclusively assigned to the disaster program henceforth. The bulk of this activity will be absorbed into the regular functions of the health department.

All of the unincorporated area receives rodent control service as part of the general health program of the county. However, the 22 cities which specifically contract for rodent control pay about $7,000 for this service. This particular aspect of county health department services seems opposed to the policy of providing basic health service both inside and outside incorporated cities.

Another exception to the rule of "standard" health service provided by the department arises with respect to the dental hygiene program. In the annual report of the health department for the year 1950-51, it is stated that

> "During the school term, the public health dental hygienists have confined their activities to the supervision of the dental health of children of the Los Angeles County school systems. * * * Since the dental hygienist staff is not adequate to cover the entire county school system, their services have been largely extended to children in county schools within unincorporated areas, and in some of the smaller incorporated cities."[30]

From this it would seem that all the large cities and some of the smaller cities served by the county health department are not receiving the dental hygiene service extended to other areas of the county. This is in contrast with other public health services uniformly supplied by the county to all public and many parochial schools, including communicable disease inspections, immunization shots and health education.

However, the three exceptions cited above do not seriously detract from the general conclusion that the county health department serves the population in its particular operating area in a uniform manner. It obviously does not serve the five cities which have chosen to remain outside the county health program. Thus it is of interest to develop some estimate of the share of the department's expenditures which one might consider as being paid by the residents of these five cities. In 1951 assessed valuation inside the five cities of Beverly Hills, Long Beach, Los Angeles, Pasadena and Vernon amounted to $3,425,764,545, with Los Angeles alone accounting for $2,652,090,910. The aggregate assessed valuation of these five cities was approximately 72 percent of the total assessed valuation of the entire county. If this figure of 72 percent is applied to the percentage of property taxes paid by city residents, as developed in Table 12, page 161, the amounts paid by residents of these five nonparticipating cities would be those shown below.

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by residents of five cities not served*[a]
General	$427,078	$45,600
Salary	2,265,243	1,197,200
Total	$2,692,321	$1,242,800

[a] Calculated at 72 percent of city ratio shown in the fund analysis in Table 13.

Thus the five cities which receive no primary health services from the county health department contributed an estimated $1,242,800 to the health department's budget requirements in 1951-52.

It is not, however, entirely correct to say that residents of the five cities do not get any direct services from the county health department. Those who have vacation resorts in county areas, or who vacation outside the cities, and their number is by no means small, make up a large portion of the work load of the department's mountain and rural sanitation section. Concentrations of persons in mountain and other rural areas give rise to serious problems of maintaining a pure water supply; of safely disposing of sewage; and of patrolling food handling and rest rooms. These problems are handled by the county, although where other governmental agencies are directly involved, as in federal military installations, or city recreational camps, the county health department works cooperatively with them.

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[29] Los Angeles County Health Department, *Annual Report 1950-51*, p. 20.

[30] *Ibid.*, p. 24.

Before leaving this particular county function, some comments on the relative levels of the health services provided by the county and the cities should be made. Generally speaking, the level of public health service provided by the county within its jurisdictional health area is determined by the requirements of the State Health and Safety Code. The adequacy with which the state standards are met varies among the 13 county health districts, as indicated by the following statements:

> *Health Centers*
>
> "* * * several of our health centers are crowded to the point where at times it is difficult to function efficiently. The Monrovia Health Center has been inadequate for several years, and now, with the annexation of the Baldwin Park and the Arcadia City Annex areas to the Monrovia Health District, the crowded situation will be aggravated. * * * The Lancaster Subcenter needs enlargement."[31]
>
> *Bureau of Maternal and Child Health*
>
> "In proportion to population, more child health conferences were held in the rural and isolated sections of the county where infant mortality rates were highest and medical care less available, than in many of the heavily populated areas adjacent to Los Angeles."[32]
>
> *Public Health Dentistry*
>
> "Only a part-time dental service has been possible for most of the districts. If all of the dental clinics were conducted on a full-time basis, the dental program still would be inadequate to meet present demands. The majority of the dental clinics have waiting lists of eligible children needing dental care. In some instances these lists are so long that under present conditions little or no hope can be held that they will all be absorbed into the preventive and educational program of the division."[33]
>
> *Communicable Disease Inspections*
>
> "During previous years special surveys of some of the substandard communities throughout the country have been made by this section, as time and personnel permitted, upon instruction of the county board of supervisors and the health officer. The unusually heavy work load during this past year has made the performance of this assignment impossible, and unless additional personnel is provided it is doubtful that the work can be continued during the coming fiscal year."[34]
>
> "During the past year the Division of Tuberculosis Control instituted, in conformance with statutory mandate, a new program of isolation in the home. * * * The demands of this control program have increased to a limit beyond which we cannot effectively function with our present staff limitation."[35]
>
> *Bureau of Public Health Nursing*
>
> "Health districts * * * fall into three groups of nurse ratios, with only one district meeting the state and federal standards of one nurse to 5,000 population.
>
> "1 nurse to 15,000-20,000 population: Alhambra, Glendale, Bellflower, Whittier and Inglewood.
>
> "1 nurse to 12,000-15,000 population: Monrovia, Torrance, San Antonio, Compton and Pomona.
>
> "1 nurse to 4,613-9,286 population: Santa Monica, East Los Angeles, and San Fernando. * * *"[36]

These statements indicate the difficulties of meeting the service levels intended under the provisions of the state health and safety code. There are obviously many aspects of the county health program which easily meet statutory standards in all of the districts, but these statements point out clearly that there are serious problems to be faced in trying to serve all health requirements equally throughout the health department area.

On the basis of per capita personnel and expenditures, available evidence indicates that the county health department is providing public health services at about the same level and cost as the five cities with independent health departments. Such comparisons, however, must be made and interpreted with great caution. For example, the following per capita expenditures were found to exist in 1950:[37]

Long Beach	$1.21
Los Angeles City	1.34
Pasadena	.99
Los Angeles County	1.38

Only the Los Angeles City figure is properly comparable to that of the county, since both health departments serve about the same total population and have the same decentralized type of administration. The closeness of the per capita outlays for health service suggests that the service levels provided are roughly comparable. In the case of the cities of Long Beach and Pasadena, however, there is a strong presumption that, due to the scale of operation, a larger portion of the per capita health costs are for departmental overhead and do not reflect actual health services to individuals.

Both the Los Angeles City and the Los Angeles County Health Departments maintain a number of health districts, each of which is administered by a district health officer. Each district operates as a geographical entity, and the personnel of one district do not generally enter another health district. Because of the similarity of these operations, it is interesting to compare the per capita personnel and expenditures of the two departments by districts for the year 1950-51. This comparison is made in Table 22.

Table 22 shows that the county health districts average .244 personnel per 1,000 population, ranging from .197 for the Glendale district to .513 for the San Fernando district. Ten of the districts are below the aver-

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[31] *Ibid.*, p. 1.
[32] *Ibid.*, p. 15.
[33] *Ibid.*, p. 23.
[34] *Ibid.*, p. 66.
[35] *Ibid.*, p. 67.
[36] *Ibid.*, p. 71.
[37] Los Angeles Division. League of California Cities, *"Rating of Public Health Subcommittee of the Committee on City-County Relations,"* May 1, 1950. Because of other relevant material in this report, it is reproduced as Exhibit 1, Appendix E.

TABLE 22

LOS ANGELES COUNTY
COMPARISON OF PERSONNEL AND EXPENDITURES OF THE HEALTH DEPARTMENTS OF THE COUNTY OF LOS ANGELES AND THE CITY OF LOS ANGELES, 1950-51

Unit	*Estimated district population 1951*	*District personnel*	*District personnel per 1,000 population*	*District expenditures for 1950-51*	*Expenditure per capita*	*Estimated per capita cost of centrally administered services*[b]	*Total expenditure per capita*
City of Los Angeles Health Department[a]							
Northeast	239,934	43.9	.183	$125,378	$0.523	$0.80	$1.32
Watts-Southeast (combined)	223,878	99.1	.442	402,049	1.796	0.80	2.60
Venice-Westchester	111,322	14.2	.128	39,079	0.351	0.80	1.15
Southwest	236,214	18.5	.078	15,963	0.068	0.80	0.87
Hollywood-Wilshire	265,149	27.3	.103	97,528	0.368	0.80	1.17
San Fernando Valley	310,962	38.5	.124	147,760	0.475	0.80	1.28
Totals for city districts	1,387,459	241.5	.174	$827,757	0.597	0.80	1.40
Los Angeles County Health Department							
Alhambra	248,646	51.9	.209	$173,777	0.699	0.63	1.33
Bellflower	123,663	24.9	.201	86,330	0.698	0.63	1.33
Compton	171,888	41.4	.241	149,274	0.686	0.63	1.50
East Los Angeles	129,470	52.2	.405	191,875	1.482	0.63	2.11
Glendale	206,558	40.6	.197	141,548	0.685	0.63	1.32
Inglewood	156,390	33.9	.217	118,633	0.759	0.63	1.39
Monrovia	115,845	25.7	.222	81,151	0.701	0.63	1.33
Pomona	126,860	28.0	.221	100,130	0.789	0.63	1.42
San Antonio	230,246	52.3	.227	184,777	0.802	0.63	1.43
San Fernando	41,516	21.3	.513	91,893	2.213	0.63	2.84
Santa Monica	129,999	43.1	.332	154,654	1.189	0.63	1.82
Torrance	141,481	33.5	.237	117,577	0.831	0.63	1.46
Whittier	100,809	21.2	.210	80,031	0.794	0.63	1.42
Totals for county districts	1,923,371	470.0	.244	$1,671,650	0.869	0.63	1.50

NOTES:

[a] Data for three additional health districts not supplied.

[b] County cost computed by deducting total district expenditures from total health department expenditures and dividing result by total population served by the county department.

SOURCE: Data supplied by the health departments of Los Angeles County and the City of Los Angeles.

age. For Los Angeles City, the six districts for which data were available show an average of .174 personnel per 1,000 population, and range from .078 in the southwest district to .442 in the combined Watts and southeast districts; four districts are under the group average.

A similar situation exists with respect to the expenditure data. The county districts average $0.869 per capita in expenditures for public health. The per capita figures range from $0.685 in the Glendale district to $2.213 in the San Fernando district. Ten districts show per capita expenditures less than the group average. For Los Angeles City, the average per capita expenditure amounts to $0.597. The southwest district was lowest with a per capita figure of $0.068 and the combined Watts-southeast districts were highest with per capita expenditures of $1.796. Five of the city districts are under the group average.

When the estimated costs of centrally-administered services to the districts are added to the district per capita expenditures, however, the county figure of $1.50 total per capita expenditure, is not much higher than the city figure of $1.40. Whether this actually means equal levels of service as provided by the city and county cannot be stated with certainty in the absence of an exhaustive investigation of health needs, morbidity, mortality rates, and the like within the various areas served. However, these data do indicate in a very gross way that the service levels of the city and county departments are roughly the same.

Highways and Bridges. Street and highway functions in Los Angeles County are performed by the county road department. This department accounted for expenditures of over 26.5 million dollars, or 9.2 percent of total budgeted expenditures in fiscal 1952. The duties and responsibilities of the Los Angeles County Road Commissioner are prescribed both by the California Streets and Highways Code (Sections 2006 to 2009) and the Los Angeles County Charter (Section 27). The significance of the charter section arises from the fact that it makes the road commissioner responsible for all construction, maintenance and repair work on roads, highways and bridges included in the county road system, thus relieving the supervisors of the direct supervision of roads in their respective road districts. Pursuant to these stipulations, the duties of the road commissioner include:

(a) Construction, maintenance and repair of roads, highways and bridges.

(b) Administration of the general policy of the county as to highway matters, as determined by the board of supervisors.

(c) Installation and maintenance of street lights in county lighting districts and lighting maintenance districts.

In a statement submitted by the road department the county's highway system was described in the following manner:

> "The county highway system is divided into primary and secondary roads for the purpose of reporting expenditures, as prescribed by the Streets and Highways Code. At the present time, the county maintains 2,014 miles of primary streets and highways, and 2,543 miles of secondary streets and highways.
>
> "Primary road mileage is determined from the total mileage of all roads appearing on the county's master highway plan. This plan was prepared in 1947, and has not been revised since that time to show subsequent road additions to the primary system. This category covers all highways which are planned to have a right of way of not less than 80 feet in width. Since construction of this system is not completed at the present time, these highways vary in right of way width from 15 to 150 feet. Examination of the county's master plan of highways reveals that these roads, for the most part, are what might generally be classified as interurban, arterial, or farm-to-market roads.
>
> "The remainder of the county's highway system is classified as secondary. These streets are in the nature of neighborhood or residential thoroughfares. Some of these streets are carrying heavy traffic and are being given consideration for addition to the primary road system.
>
> "Since it is unnecessary for the County to classify any roads as 'local roads' for the purpose of reporting expenditures to the State Controller, no such classification exists." [38]

Budgeted expenditures of the road department for 1951-52 were as follows:

Motor vehicle fund	$25,271,300
Special road fund	998,093
Supervisorial road district No. 1	161,248
Supervisorial road district No. 2	29,338
Supervisorial road district No. 3	11,019
Supervisorial road district No. 4	69,651
Supervisorial road district No. 5	57,993
Total expenditures budgeted	$26,598,642

The expenditures shown for each of the five supervisorial road districts are herein disregarded, since they represent outlays of funds raised within each district by means of road district tax rates ranging from $0.0282 to $0.0342 per $100 of assessed valuation.

Expenditures from the first two county funds shown above involved no county levies; they were financed by subventions from the State Highway Users' Tax Fund.[39]

Thus this analysis of roads and bridges is concerned with a total expenditure of $26,269,393 from the motor vehicle fund and the special road fund, the moneys in both of which derive from state subventions to counties.[40] This gross amount, however, is offset by departmental revenues which amounted to approximately $330,000 received from repair and inspection reimbursements; contribution on projects cooperatively undertaken with subdividers; payments for work performed on contract; and other reimbursable items. Thus, in a net sense, expenditures amounted to only $25,939,393.

Los Angeles County has approximately 4,500 miles of roads in its county road system. About 45 percent of this mileage is designated as primary road and 55 percent is designated as secondary road. This extensive system covers a wide range of topography and carries a tremendous volume of traffic. It requires very large amounts of construction and maintenance work on all types of streets, roads and bridges. To carry out this work the department has established six divisions. In addition to two "overload" divisions, viz., administration and business and finance, there are four functional divisions: the bridge division; the construction division; the maintenance division; and the traffic and lighting division.

THE BRIDGE DIVISION. The bridge division has the responsibility for the design, construction and maintenance of more than 400 bridges in the county. No bridges of a strictly local nature are constructed by the county; they are constructed only on primary or secondary routes which constitute either major parts or connecting links in the county road system. The county-wide nature of such bridges is indicated by the large sums of money made available to assist the county in bridge construction, both by the Federal and by the State Government. In 1950-51, for example, an expenditure of $2,114,000 was administered for bridge purposes by this division, over and above the amounts shown in the county budget. Of this, $2,000,000 consisted of federal grants under the Federal Highway Aid Acts of 1944 and 1948 while the remainder was received from the State under the provisions of the County Highway Aid Act of 1945 and Chapter 20 of the Statutes of 1946, First Extraordinary Session.

THE CONSTRUCTION DIVISION. All expenditures for the construction and reconstruction of county roads are met from the motor vehicle fund. These expenditures are related almost exclusively to major and rural secondary highways. The construction of secondary streets in unincorporated urban areas, including curbs, gutters and some streets, are financed through special assessment levies in county improvement districts. The construction division, however, plans and supervises such work on a cost basis. During 1950-51, for example, 4½ miles of local streets were constructed on a special assessment basis, involving contract costs of about $136,000.

Under certain conditions, a limited amount of road construction inside subdivisions is performed and paid for by the county. In the words of the road commissioner,

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[38] Statement to this committee by the Los Angeles County Road Department, October 30, 1952.

[39] Detailed schedules of road funds received from the State are reproduced in Appendix E, Table 5.

[40] A detailed schedule of Los Angeles County Road Department expenditures is reproduced in Appendix E, Table 6.

> "Many subdivisions border on or have major and some minor highways passing through them. Subdividers are required to make the necessary 100 or 80-foot dedications for right of way and required to grade the streets to the established grade and install transverse drainage structures. In the event that a subdivider is willing to construct concrete curb and 2-foot gutter, the county has accepted the obligation of installing some type of entire street surfacing commensurate with traffic needs."[41]

Thus subdivision thoroughfares which function as a part of the primary road system may be surfaced by the county, provided the subdivider fulfills the requirements stated above. The road commissioner further states that this policy does not apply to any subdivision roads classified as secondary. Out of some 125 to 150 miles of subdivision roads accepted each year, about 10 miles qualify for surfacing by the county. The cost of such work is paid from a department account entitled "Subdivision Projects—Special Appropriation."

Frequently, too, the creation of subdivisions necessitates adjustments in the network of surrounding primary and secondary highways in order to integrate the new traffic flows into the general vehicular stream. Present county policy in this regard is to join with the subdividers, on a cooperative basis, to provide the necessary improvements in major and secondary highways adjacent to new subdivisions. During 1950-51, the county spent a total of $742,223 for this type of construction. For 1951-52, with the number of subdivisions running at about the same rate, it may be assumed that the expenditure was roughly of the same magnitude.

The county road department also constructs concrete curbs and gutters on limited portions of roads in unincorporated urban areas, but not inside subdivisions. This is done whenever the road department judges that, due to the drainage and sweeping problems involved, the existence of curbs and gutters will reduce road maintenance costs. In some cases the county pays for the full costs of such curbs and gutters, while in others a share of the costs is locally met, depending upon the portion of the work deemed necessary to proper county road maintenance. The road commissioner states that in the urban unincorporated business-commercial areas, the costs of such curbs and gutters, as well as any sidewalks which may be installed, are paid by special assessments on the local property owners. Prior to 1949 the county bore half the costs of curbs and gutters if the property owner assumed the other half. The department states:

> "In the early forties we instigated a policy wherein if the property owner would assume one-half of the cost of the construction of cement curbs and two-foot gutters the County would assume not only the other half of the curbs and gutters, but would also assume the entire expense in connection with the extension of the surface to the edge of the gutters. This was designed to provide a full-width surface thereby eliminating shoulder maintenance, with the corresponding decrease in cost. However, for financial reasons, it has been necessary to discontinue this policy. In the outlying areas, where curbs do not exist, the earth shoulders are periodically graded with power graders in order to control an unsightly growth of vegetation and to preserve a flow line which might function insofar as is practical in the absence of concrete gutters. We have not established the policy of planting highway shoulders and question its efficacy because of the uncertain precipitation in Southern California."[42]

With respect to subdivisions, the county now requires that the subdivider pay for any improvements which may be called for under the following specifications:

> "On local streets of 60-foot right-of-way or less, in the urban areas, concrete curbs and gutters are required where the grade is .4% or less. * * * Where the grade is greater than .4% no gutters are required. In some cases, where anticipated pedestrian traffic is heavy, 4-foot concrete sidewalks are required. In the rural areas, concrete curbs are not required. * * * The basic principle involved is that the subdivider shall provide a type of improvement which will relieve the County of construction expense for a period of from five to ten years."[43]

The construction division also performs several other functions. These include checking and investigating plans for streets in subdivisions; processing permits involving curbs, gutters and driveways; and performing laboratory tests of roadbed soil. Some portion of the costs involved in the first two items is recovered through the levy of permit inspection fees. Apart from this consideration, however, the point may be made that these activities seem to be appropriate road department functions if the county is to accept subdivision streets and street improvements into the county road network. Acceptance of dedicated streets into the county highway system depends, of course, upon whether they meet county requirements.[44] Proper supervision and inspection of improvements, moreover, insures that future reconstruction and maintenance will be held to a minimum. Thus, present expenses might be more than recovered in lower future outlays.

THE MAINTENANCE DIVISION. This division performs ordinary road maintenance, special maintenance and road betterment functions for the entire county road system. For administrative purposes, the unincorporated area is divided into the five supervisorial districts. These are then subdivided into a total of 24 road foreman districts. For each of the latter the average maintenance load is about 180 miles, with personnel and equipment assigned to each on the basis of road needs and general topography.

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[41] Statement to the committee by the Los Angeles County Road Commissioner.

[42] County of Los Angeles Road Department, *Annual Report*, 1950-51, p. 23.

[43] Statement submitted to the committee by the Los Angeles County Road Commissioner.

[44] The road department states that there are perhaps 100 miles of streets which have not been improved to county standards and consequently have not been accepted.

The maintenance division is also in charge of six detention camps, wherein a total of about 500 county jail prisoners are put to work on mountain road construction. All costs of these camps are paid by the road department, except the salaries and meals of the two sheriff's deputies assigned to each camp. The 1950-51 Annual Report of the Road Department states that "The work performed by the camps opens and improves highway arteries through rather inaccessible areas, making a valuable addition to a comprehensive and integrated highway system. The roads are also of value in fighting fires, danger of which is ever present during the dry season."

The work load of the maintenance division has been growing rapidly in recent years due to the acceptance of new streets into the county highway system. In addition to the standards discussed above relating to curbs, gutters and sidewalks, the county stipulates that a full-width asphaltic surface, 1½ to 2 inches thick, be installed on an appropriate base. These construction standards are similar to those used by the state and are higher than those in use in many cities. In fact, many municipalities in Los Angles County have been guided by these county road standards. County policy apparently emphasizes the maintenance of road standards in subdivisions and other developed areas so as to make these communities acceptable for future annexation or incorporation. In a cooperative effort to keep abreast of developments, county representatives from the road department and the department of county engineer-surveyor sit on a subdivision standards committee along with representatives from the cities of Los Angeles, Monrovia, Alhambra, Pasadena and the League of California Cities.

Two aspects of county maintenance and betterment work merit additional discussion. First it should be noted that while the county performs no *construction* work inside subdivisions, it does maintain subdivision streets, provided they have been accepted into the county road system. Where subdivision streets are used by persons other than the immediate subdivision residents as connecting links with other county roads, their maintenance obviously possesses more than a purely local interest. However, where a subdivision street network used *only* by those living in that subdivision is maintained at the expense, direct or indirect, of the entire county population, it would be difficult to argue that the entire county is benefited by such expenditure. Such a situation suggests that a *higher* level of street service is being furnished to the residents of such a subdivision than is provided elsewhere, especially in rural areas.

The second matter relates to street sweeping services. Street sweeping is performed in most of the urban areas of the county, with 20 full-time road department personnel assigned to 20 sweeper machines. Six more machines are held as spares, in line with the road commissioner's statement that efficient sweeping operations require one spare to every three machines kept active. Sweepers are assigned to such unincorporated urban areas as Altadena, Paramount, Temple City and Lakewood.[45] The department states that stones, bricks and indiscriminately-dumped trash are swept up, but that grass clippings and other private refuse are not.

A certain amount of street sweeping in urban areas can be justified from the standpoint of adequate road maintenance, since debris left on the highways and streets not only promotes deterioration of the road surfaces, but causes troublesome drainage problems during periods of heavy rainfall. Los Angeles County faces an additional problem in the form of debris promiscuously dumped on the county highways by persons who use this means of avoiding the expense or trouble of otherwise disposing of trash. However, one may seriously question whether the large amount of street sweeping which is at present performed by the road department is necessary for road maintenance.

The final budget for 1951-52 shows $260,000 appropriated from the motor vehicle fund for power street sweeping. The road commissioner states that the department analyzed the costs and revenues pertaining to street sweeping in 1950 and concluded that revenues of the supervisorial road districts more than cover the outlays involved. While it is true that the revenues of $329,249 from road district taxes exceeded the budgeted requirements for street sweeping in 1951-52, these revenues appear to be set aside in the budget for other road purposes within the districts, such as the maintenance of roads and culverts, trimming roadside trees and shrubbery and the improvement of center and side panels on major highways. The road district budgets make no mention whatsoever of power street sweeping.[46] Under these circumstances, it would seem that, to the extent that street sweeping by the county is actually in excess of the amount required for economical road maintenance, the residents of those unincorporated urban areas who receive this service gain special benefits at the expense of other county residents.

THE TRAFFIC AND LIGHTING DIVISION. The Annual Report of the Road Department for 1950-51 states that in 1950 "all street lighting functions of the county government were transferred to the road department and consolidated with traffic engineering activities in a new traffic and lighting division." This division is responsible for the design, placement and maintenance of all types of street lights, traffic signals, signs, parking meters, curb markings and highway striping. The work of this division is performed by two sections viz., traffic and lighting.

The responsibilities of the traffic section include studies and surveys of traffic conditions; recommendations concerning the installation of traffic regulation signs; maintenance of traffic regulation signs; design of traffic signal installations and parking meter installations; and striping highways. With the exception of the parking meter item, these functions are closely related to the over-all operations of the county highway system. Parking meter installation is not, however, a very large activity of the section. At the present time there are about 2,120 meters in the various parking districts which have been established. Moreover, as was shown in a preceding section dealing with the sheriff's department, all the costs of patrolling and maintaining meters are recovered from meter revenues.

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[45] See Appendix E, Table 7.

[46] In the preliminary budget for 1952-53, street sweeping is listed under the heading of ordinary maintenance, which is financed, as in the previous year's budget, from the motor vehicle fund. The comment is made that "ordinary maintenance is not subdivided into specific amounts for each supervisorial district. Projects from this fund are authorized by the board of supervisors as needed." (p. 121-c).

The lighting section is responsible primarily for the design of street lighting installations; the maintenance of traffic signals, street lights, and parking meters; and the installation of some traffic signals. Street lights in unincorporated urban areas are provided either through special lighting districts or through utility-owned lighting systems. At the present time there are some 90 lighting districts and 48 lighting maintenance districts, with perhaps 20 more of the latter due to be formed in the near future. The lighting section designs and supervises the installation of lighting facilities, and the expense of such work is charged to the districts. Of the more than 20,000 lights in the 90 lighting districts, the county maintains about 7,000, recovering its current costs through a direct charge of $0.10 per lamp per month. The remaining lights are attended by the utility companies supplying the power. The lighting section also maintains over 4,000 of the 5,200 lights in the lighting maintenance districts.

The county itself operates one county-owned lighting system. This is located at the Sawtelle Soldiers' Home, where an underground street lighting system was installed in 1927 and charged against supervisorial road district funds. Subsequent operation and maintenance costs have been met entirely from these same funds. The county also maintains 209 signalized intersections and 48 flasher installations. In addition to these, 206 signalized installations are jointly maintained with the State and 42 with certain cities.

Some motor vehicle fund moneys are expended for the installation and operation of highway safety lights, a considerable number of which are located throughout the county road system. The decision to install these lights is made on the basis of traffic safety only; considerations of convenience or protection against crime are not involved. Conditions which may result in the erection of a highway safety light include conflict in vehicular, or vehicular and pedestrian, traffic; a high accident rate; channelization of traffic; or some other unusual situation. The road department makes a full investigation and recommends the type of lighting to be installed. Installation of highway safety lights is made without regard to the boundaries of lighting districts. Usually the equipment is utility-owned and operated, with the county paying all costs. Some intersections are serviced by a combination of traffic signals and safety lights.

COUNTY ROAD DEPARTMENT FUNCTIONS RELATING TO CITIES. County road department operations become involved with city street problems in three major ways: (1) contract road work performed for cities; (2) county road work performed in cities; and (3) financial aid to cities. Seven cities in Los Angeles County have entered into agreements with the county road department whereby the latter provides at cost various road maintenance and construction operations within the incorporated city areas. These cities are El Monte, Glendora, Hermosa Beach, Manhattan Beach, Palos Verdes Estates, San Gabriel and Sierra Madre. However, the extent of this county service to cities is rather limited. In most cases only jobs calling for rather specialized equipment are performed, such as street striping, sealing and the like. Nevertheless, the county road department will enter into contracts for the performance of any kind of work similar to that done on county roads. It should be noted here that the county neither lends nor rents road equipment to cities.

As to the second relationship noted above, county road construction and, less frequently, road maintenance is occasionally performed within the limits of particular cities. In most instances this situation develops when a major county highway passes through an outlying part of a city. During 1950-51, for example, sections of county roads ranging from .05 to 1.57 miles were constructed in the six cities of Compton, El Monte, Hawthorne, Inglewood, Long Beach, and Los Angeles. In the case of Compton, the county not only built a strip totalling 1.9 miles along Alameda Street (a major arterial) over the last few years but also provided the maintenance required by this strip.

With respect to the matter of financial aid to cities, there are two programs under which the county makes funds available to cities. One is called "Aid to Cities" and involves the distribution among cities, on the basis of population and street mileage, of funds from $\frac{3}{16}$ of the county's one-cent portion of the state gasoline tax. In 1951-52 the total allocated to cities under this program amounted to $1,963,758. This sum was distributed as indicated on page 205.

A second program is known as "Highways Through Cities—Special Projects," and according to the road department, it has been developed to meet "the need and necessity for connecting improvements or contemplated improvements in the county system which are bottle-necked by comparatively small sections within the cities." For 1951-52 such special projects were estimated to require the sum of $1,414,529. Special project funds are *in addition* to those distributed under the aid to cities program. These moneys also derive from the three-sixteenths of the county's 1-cent portion of the state gasoline tax accruing to the Motor Vehicle Fund. The only exception to this method of financing special projects occurred in 1950-51, when certain costs were first deducted from the county's three-sixteenths allocation to the cities, and the remainder was distributed in the usual fashion. Since 1951, however, the board of supervisors has reverted to its original policy.

Under both of these programs, therefore, a total in excess of $3,000,000 was made available to the cities by Los Angeles County during fiscal 1952. This amounted to 20.4 percent of state apportionments to the county for the same period, as made under the Streets and Highways Code. As shown in Table 23, the

City	*Amount received from the county under the "aid to cities" program 1951-52*
Avalon	$766.34
Alhambra	29,985.89
Arcadia	15,620.01
Azusa	6,739.65
Bell	8,499.97
Beverly Hills	17,412.44
Burbank	47,294.59
Claremont	4,032.54
Compton	29,028.56
Covina	3,331.40
Culver City	13,043.44
El Monte	4,782.08
El Segundo	5,529.12
Gardena	9,218.10
Glendale	56,963.11
Glendora	2,779.22
Hawthorne	9,187.20
Hermosa Beach	7,550.55
Huntington Park	16,867.72
Inglewood	27,311.85
La Verne	2,729.51
Los Angeles	1,162,621.72
Long Beach	144,313.71
Lynwood	16,143.98
Manhattan Beach	11,275.42
Maywood	7,349.47
Monrovia	11,488.43
Montebello	13,672.12
Monterey Park	11,068.37
Pasadena	64,302.44
Palos Verdes Estates	3,529.11
Pomona	24,464.30
Redondo Beach	16,970.82
San Fernando	7,457.33
San Gabriel	12,036.82
San Marino	8,170.78
Santa Monica	40,776.18
Sierra Madre	4,434.61
Signal Hill	3,290.86
South Gate	29,306.87
South Pasadena	10,874.44
Torrance	18,673.72
Vernon	2,436.30
West Covina	5,851.63
Whittier	14,575.28
Total	$1,963,758.00

average for the eight-year-period, including the budgeted amount for fiscal 1953, amounted to 20.8 percent. This allocation to cities of about one-fifth of the county's annual highway funds suggests that county road operations, excluding those relating only to supervisorial road districts, are provided on a county-wide basis. In fact, if the division of state highway users' tax fund moneys budgeted by the Collier-Burns Act of 1947 is considered equitable in terms of the street and highway responsibilities imposed upon counties and cities, respectively, then the present policy of Los Angeles County both meets this measure of equity and goes beyond it. Contrary views concerning this distribution of Los Angeles County motor vehicle fund moneys do not, therefore, raise issues with respect to county road policy as much as they question the structure of state subventions for street and highway purposes.

TABLE 23

LOS ANGELES COUNTY

MOTOR VEHICLE FUND MONEYS DISTRIBUTED TO CITIES, BY TYPE OF PROGRAM AND AS A PERCENT OF TOTAL COUNTY APPORTIONMENTS RECEIVED UNDER STREETS AND HIGHWAYS CODE

1945-46 to 1952-53

Year	*Aid to cities*	*Highways through cities—special projects*	*Total*	*Percent of total county apportionments received under Streets and Highways Code*
1945-46	$1,633,261	$11,000	$1,644,261	19.2
1946-47 [a]	--	2,489,929	2,489,929	22.3
1947-48	2,365,691	546,340	2,912,031	20.7
1948-49	1,734,592	1,212,369	2,946,961	22.8
1949-50	2,140,754	485,531	2,626,285	18.7
1950-51	1,915,440	373,540	2,288,980	15.2
1951-52	1,963,737 [c]	1,414,529	3,378,266	20.4
1952-53 [b]	3,109,496	1,474,140	4,583,636	25.9
Total	$14,862,971	$8,007,378	$22,870,349	20.8

NOTES:

[a] During this year all distributions were placed in the highways through cities classification.

[b] Budgeted distributions, omitting $1,033,258 carried over from special projects financed in 1951-52.

[c] This figure is slightly less than the figure shown on pages 204 and 205, because of different sources.

SOURCE: Los Angeles County Road Department.

Recreation and Parks. County park and recreation operations appear under the general budget heading of "Recreation." In 1951-52 budgeted expenditures amounted to $3,862,060, or about 1.3 percent of the total county budget. The department of parks and recreation accounted for $3,317,760, while the balance of $544,300 was allocated to the county museum. Department income amounted to $158,675, largely from swimming pool and golf course fees. Under its jurisdiction, the department of parks and recreation has 66 parks, nine beaches, two golf courses, nine swimming areas, five special park, recreation and parkway districts and eight parkways.

Fund	*Budgeted expenditures*	*Net expenditures*	*Percentage*
General	$881,485	$722,810	22.9
Salary	2,436,275	2,436,275	77.1
Total	$3,317,760	$3,159,085	100.0

Counties operating under general laws are not required to provide park and recreational services, and the Los Angeles County charter does not provide for this function. Thus the department's activities rest upon the approval of the board of supervisors. In general these activities can be placed in a twofold classification: (1) the development and maintenance of county parks, recreation areas, environmental grounds for government and institutional buildings, and roadside trees; and (2) the operation of a recreation program involving not only most of the county's park and recreation facilities, but also those within some school districts.

The program of the department is carried out by eight divisions. These divisions, together with the amounts spent by each one in 1950-51 and the amounts spent on capital outlay and cooperative programs with school districts are shown below:

Division	*Expenditures 1950-1951*	*Percent of total departmental budget*
1. Planning and engineering	$259,780	9.4
2. General maintenance		
3. Service of supply		
4. Roadside tree	174,990	6.3
5. Buildings and grounds	75,285	2.7
6. Park and recreation areas	1,588,104	57.5
7. Music		
8. Beach	310,005	11.2
Payments to school districts as grants and for contract services	261,598	9.5
Capital outlay	94,655	3.4
Total departmental budget	$2,764,417	100.0
Capital projects	507,788	
Total expended for parks and recreation purposes	$3,272,205	

The first three divisions listed above may be considered as "overhead" units, performing administrative, maintenance, supply and planning functions. Altogether they account for about 9 percent of the department's total budget, and their costs should be allocated to the principal operating divisions.

The next two, the roadside tree division and the buildings and grounds division, account for another 9 percent of the budget. The roadside tree division plants, trims and otherwise cares for trees and shrubs along the rights of way of the county highway system, in county parks and grounds and for other county departments. In addition, it offers advisory services to cities and private citizens on trees and shrubs; issues permits to plant, trim or remove trees; and passes on these matters in subdivision development.

The expenses associated with roadside tree work are shared by the department and the supervisorial road districts. Pursuant to a board of supervisors' decision, April 22, 1952, 1 cent in the tax levy of the supervisorial road districts has been set aside for trimming roadside trees and shrubbery. This amount is matched by a similar amount from the general fund moneys in the budget for the department of parks and recreation. An additional one-half cent of the tax rate has been earmarked for the improvement of center and side panels in the major highway system. Thus roadside tree care apparently is provided from general county funds when it relates to care along major county highways and by supervisorial district funds when it relates to care not properly classifiable as county-wide in interest.

The buildings and grounds division spends some $75,000 annually for grounds maintenance at two county institutions and eight government buildings. This expenditure obviously must be regarded as a part of the general overhead associated with the performance of county-wide functions.

The park and recreation areas division and the music and beach divisions accounted for 70 percent of the department's total budget, or approximately $2,320,000 in the 1951-52 Fiscal Year. Through a variety of programs, these divisions provided recreational opportunities to both city and noncity residents, although the extent to which residents of either of these areas participate differs considerably, depending upon the facilities and the programs in question. It should be remembered, too, that the county is not alone in providing recreational services. Many other agencies in Los Angeles County, federal, state, city, special district, school district and private, also operate in this field and, of course, large amounts of "inter-use" take place. The job of coordinating this great variety of recreational services in Los Angeles County is a large one.[47] It should be noted that the board of supervisors appointed a city-county recreational advisory committee in the spring of 1951, to study ways and means of financing the operation of county parks. Equal numbers of city and county representatives sit on the committee, together with several representatives of taxpayers' associations. The committee has held three meetings and is preparing a report containing findings and recommendations.

Expenditures of the park and recreation areas division constitute over 50 percent of the total department budget. In 1950-51 actual expenditures, and in 1951-52 budgeted expenditures, amounted to approximately $1,500,000. This figure included the county-school cooperative recreation program, but excluded capital projects, which are discussed separately.

For administrative purposes, Los Angeles County has been divided into six parks managers' divisions: Arcadia County Park-Santa Anita Golf Course; Northeast Division; Northwest Division; Southwest Division; Southeast Division; and South Division. A parks manager is in charge of each division and he is assisted by a senior recreation director, who aids him in administering the recreation program; and a park maintenance foreman, who directs the grounds maintenance program.

In its Annual Report for 1950-51 the department listed the following inventory of recreation facilities:

Amphitheatres with stage	3
Auditorium buildings	3
Badminton courts	6
Balance rails	2
Baseball diamonds (lighted)	1
Baseball diamonds (unlighted)	8
Basketball courts	29
Bowling green and club house	1
Community buildings with auditorium and gymnasium	12
Craft buildings	20
Croquet courts	5
Fire circles	5
Flying rings	8
Golf courses	2
Handball courts	11
Horizontal bars	18
Horizontal ladders	8
Horseshoe courts	43
Jungle gyms	12
Merry-go-rounds	26
Outdoor dance floors	2
Paddle tennis courts	5
Picnic areas with tables and benches	39
Ping pong tables	Most areas
Swimming pools	7

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[47] A statement made by Supervisor Roger W. Jessup at a meeting of the County Citizens Committee on Parks, Beaches and Recreational Facilities, January 10, 1945, excellently summarizes the general problem of coordinating recreational facilities in Los Angeles County. See Appendix E, Exhibit 2.

TABLE 24

LOS ANGELES COUNTY
COUNTY-OWNED OR ADMINISTERED PARK AND RECREATION FACILITIES

		Location	
General Type	*Number*	*Inside cities*	*Outside cities*
1. Regional, improved	16	Arcadia County Park and Pool (Arcadia) Crescenta Valley Park (Glendale) Ladera Park (Los Angeles) Santa Anita Golf Course (Arcadia) Southwest Sportsman's Park (Los Angeles)	Alondra Park and Lake (Lawndale) Altadena Golf Course (Altadena) Dexter Park (above Pacoima) Garvey Memorial Recreation Center (Wilmar) Gen. Chas. S. Farnsworth Park (Altadena) Malibu Lagoon (Malibu) Plummer Park (West Hollywood) Puddingstone Dam Recreational Area (near San Dimas) San Dimas Canyon Park (San Dimas) Tapia Park (Calabassas) Val Verde Park and Pool (Castaic)
2. Regional, unimproved	4	Roger Jessup Park (Pacoima)	Eaton Canyon Park (near Pasadena) Placerita Canyon State Park (Newhall) Whittier Narrows Park (Whittier Narrows)
3. Local, improved	42	None	Artesia Park (Artesia) Athens Park (Athens) Atlantic Avenue Park and Pool (E. Los Angeles) Avalon-Sepulveda Park (S. Los Angeles) Bassett Park (Bassett) Bell Gardens Park (Bell Gardens) Belvedere Park and Pool (E. Los Angeles) City Terrace Park (E. Los Angeles) Duarte Park (Duarte) East Los Angeles Park (E. Los Angeles) East Montebello Park (E. Montebello) Enterprise Park (near Compton) Franklin D. Roosevelt Park (Florence) Glenhaven Park (Montrose) H. M. Newhall Memorial Park and Pool (Newhall) Hacienda Park (La Habra Heights) Imperial Park (Downey) Jane Reynolds Park (Lancaster) John S. Sims Park (Bellflower) Laguna Park (E. Los Angeles) Lakewood Pan-American Park (Lakewood Village) Lambert Park (near El Monte) La Puente Park (Puente) Lawndale Community Center (Lawndale) Lennox Park (Lennox) Lomita Park (Lomita) Mayfair Park (Lakewood Village) McNees Park (Willowbrook) Michillinda Park (E. Pasadena) Mona Park (Willowbrook) Mountain View Park (near El Monte) Palmdale Park and Pool (Palmdale) Paramount Park (Paramount) Repetto Park (E. Los Angeles) Rosemead Park (Rosemead) Rosewood Park (Bandini) Temple City Park (Temple City) Two Strike Recreation Center (La Crescenta) Valleydale Park (Valleydale) Wardlow Park (Lakewood Village) West Hollywood Park (West Hollywood) Will Rogers Memorial Park (Watts)
4. Local, unimproved	12	Lugo Park (South Gate)	Agoura Recreation Center (Agoura) Barnes Park (West Baldwin Park) Bartola Park (Pico) Bellflower Park (Bellflower) Bloomfield Park (E. Long Beach) Carmenita Park (S. of Norwalk) Downey Park (Downey) El Nido Park (El Nido) Irwindale Park (Irwindale) Little Lake Park (N. of Norwalk) Live Oak Park (Temple City)

SOURCE: Data supplied to this committee by the Los Angeles County Department of Parks and Recreation.

Sand boxes	21
Shuffleboard courts	22
Skating rinks	7
Slides	42
Softball fields (lighted)	18
Softball fields (unlighted)	22
Stoves (wood and gas)	75
Swings (large and small) (sets)	57
Tennis courts (lighted)	30
Tennis courts (unlighted)	29
Tetherball courts	25
Traveling rings (sets)	22
Volleyball courts	26
Wading pools	1

These facilities are distributed throughout the county's system of regional and local parks, although 16 of the county parks are stated to be unimproved, and it may therefore be assumed that they possess few of them.

Table 24 classifies county parks by type and location. The table shows that of the 20 regional facilities, 16 are improved with various types of sport facilities, community centers, playground equipment and the like. Five of these improved regional parks lie within incorporated cities. Forty-two of a total of 54 local parks are also improved, i.e., have various types of facilities and equipment available. No improved local parks are located inside cities. The locations of these regional and local parks as well as the beach areas discussed below are shown in Figure 28.

While the regional parks can readily be labeled as county-wide in benefit, the 54 parks and recreation areas classified as *local* are not so easily classified. Judged solely on the basis of their nature and location, one might suppose that they serve limited groups residing within a short radius, and almost exclusively in the unincorporated areas. To the extent that this is true, the provision of local recreational facilities represents a county service to less than the entire county. However, available data reveal that this supposed distribution of local park service does not occur for many of the parks classified as local. Table 25 presents data for all the improved regional and local facilities, including population in the immediate vicinity, total attendance figures, expenditures, per capita costs and extent of city participation. The table also shows that at least 24 of the so-called local facilities experience considerable use by city residents. A recapitulation of the extent of city participation reported for the 44 local facilities listed in Table 25 shows the following distribution:

Extent of participation by city residents	*Number of parks or facilities*
None	20
1 to 20 percent	15
21 to 40 percent	6
41 to 60 percent	1
60 to 80 percent	2
	44

Although none of the local facilities is inside an incorporated city, 28 are situated within one mile of the corporate limits of a city. While it is undoubtedly true that the participation by city residents reflects a use by those from cities in the immediate vicinity only, rather than a general influx from many cities in the county, the fact that about half the "local" county facilities have significant amounts of such use, and one-fifth experience more than 20 percent participation by city residents, must be taken into consideration.

Two other aspects of the parks and recreation areas division's operations must also be considered in evaluating the service which it provides to the residents of Los Angeles County. These are (1) the general activities program, and (2) the school cooperation program.

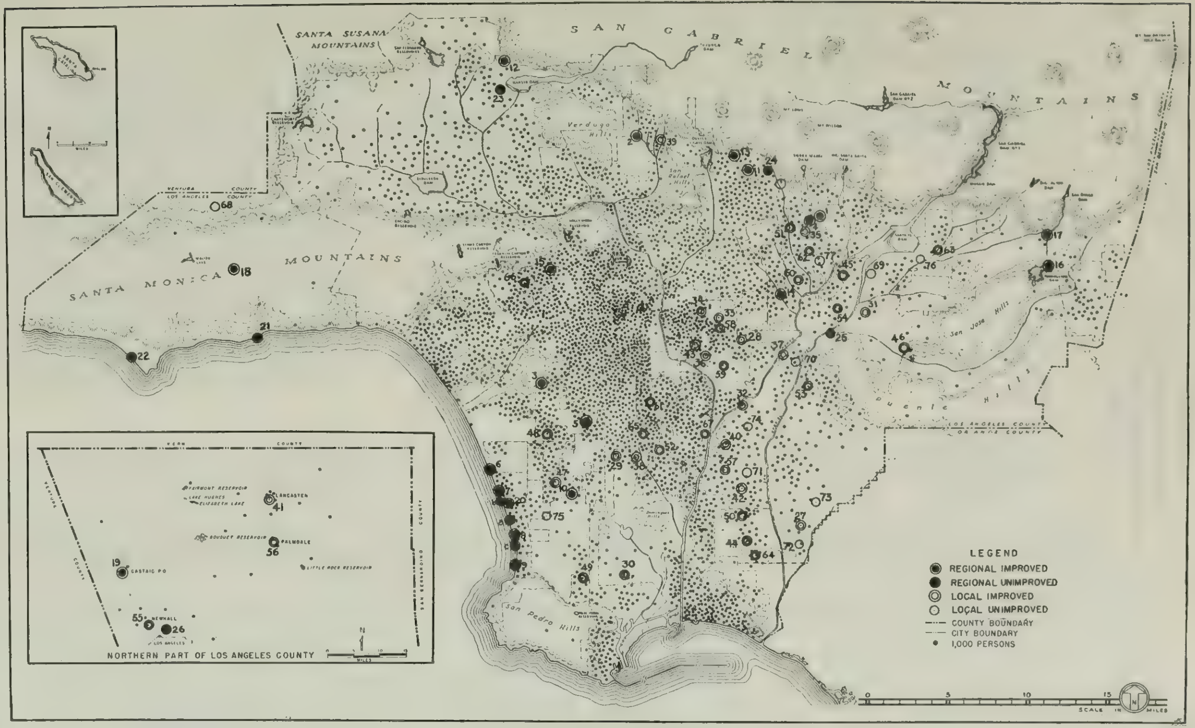
The division administers a broad program of activities for all age groups, including classes in various types of handicraft and dancing. These activities are conducted at all the improved regional and local facilities, and in many instances with the close cooperation of local and regional organizations. During 1950-51, over 6,400,000 separate participations were tabulated within this program. Although the data are not broken down by residence, the numbers of the participants alone is worth noting, since it indicates the very large number of persons served by various activities of the department. The department's Annual Report for 1950-51 lists participants in the programs provided, and this list is reproduced below:

Badminton	25,589
Basketball	458,214
Caroms	389,546
Checkers	231,408
Clubs	74,798
Croquet	52,121
Dancing	165,532
Day camping	11,652
Dramatics	15,927
Golf	133,186
Handball	29,361
Handicraft	240,880
Hardball	32,680
Horseshoes	62,079
Jacks	57,910
Jump rope	102,763
Kickball	197,722
Lawn bowling	8,610
Movies	131,147
Music	66,731
Paddle handball	26,837
Paddle tennis	84,429
Ping pong	301,696
Picnics	694,933
Playground baseball	511,716
Playground apparatus	542,223
Puppets	7,916
Roller skating	31,008
Story telling	73,706
Swimming (pools and lakes)	534,916
Shuffleboard	48,803
Soccer	18,629
Tennis	173,852
Tetherball	448,535
Touch football	285,475
Volleyball	152,395
Total	6,424,925

The division also puts on county-wide special events, such as county-wide tournaments in softball, touch football, basketball and track and various shows, contests and displays given on holidays or whenever community interest dictates. The distribution of these activities among citizens of the county is assumed to approximate that shown in Table 25, based on attendance checks in most of the programs.

FIGURE 28

LOS ANGELES COUNTY REGIONAL AND LOCAL PARKS
January, 1952



KEY TO REGIONAL AND LOCAL PARKS

REGIONAL IMPROVED

in cities
1. ARCADIA COUNTY PARK & POOL
2. CRESCENTA VALLEY PARK
3. LADERA PARK
4. SANTA ANITA GOLF COURSE
5. SOUTHWEST SPORTSMAN'S PARK
6. EL PORTO STATE BEACH*
7. MANHATTAN STATE BEACH*
8. REDONDO STATE BEACH*
9. TORRANCE COUNTY BEACH

outside cities
10. ALONDRA PARK & LAKE
11. ALTADENA GOLF COURSE
12. DEXTER PARK
13. GEN. CHAS. S. FARNSWORTH PARK
14. GARVEY MEMORIAL RECREATION CENTER
15. PLUMMER PARK
16. PUDDINGSTONE DAM
17. SAN DIMAS CANYON PARK
18. TAPIA PARK
19. VAL VERDE PARK & POOL
20. CLIFTON STATE BEACH*
21. MALIBU LAGOON
22. ZUMA BEACH COUNTY PARK

REGIONAL UNIMPROVED

in cities
23. ROGER JESSUP PARK

outside cities
24. EASTON CANYON PARK
25. WHITTIER NARROWS PARK
26. PLACERCITA CANYON STATE PARK

REGIONAL IMPROVED
CITY BEACHES, SUPERVISED BY COUNTY

in cities
a. HERMOSA CITY BEACH
b. MANHATTAN CITY BEACH
c. REDONDO CITY BEACH

* STATE BEACHES, OPERATED BY COUNTY

LOCAL IMPROVED

outside cities
27. ARTESIA PARK
28. ATLANTIC AVENUE PARK & POOL
29. ATHENS PARK
30. AVALON-SEPULVEDA PARK
31. BASSETT PARK
32. BELL GARDENS PARK
33. BELVEDERE PARK & POOL
34. CITY TERRACE PARK
35. DUARTE PARK
36. EAST LOS ANGELES PARK
37. EAST MONTEBELLO PARK
38. ENTERPRISE PARK
39. GLENHAVEN PARK
40. IMPERIAL PARK
41. JANE REYNOLDS PARK
42. JOHN S. SIMMS PARK
43. LAGUNA PARK
44. LAKEWOOD PAN-AMERICAN PARK
45. LAMBERT PARK
46. LA PUENTE PARK
47. LAWNDALE COMMUNITY CENTER
48. LENNOX PARK

LOCAL IMPROVED

outside cities
49. LOMITA PARK
50. MAYFAIR PARK
51. MICHILLINDA PARK
52. MONA PARK
53. McNEES PARK
54. MOUNTAIN VIEW PARK
55. H M NEWHALL MEMORIAL PARK & POOL
56. PALMDALE PARK & POOL
57. PARAMOUNT PARK
58. REPETTO PARK
59. ROSEWOOD PARK
60. ROSEMEAD PARK
61. F D ROOSEVELT PARK
62. TEMPLE CITY PARK
63. VALLEYDALE PARK
64. WARDLOW PARK
65. WILL ROGERS MEMORIAL PARK
66. WEST HOLLYWOOD

LOCAL UNIMPROVED

in cities
67. LUGO PARK

outside cities
68. AGOURA RECREATION CENTER
69. BARNES PARK
70. BARTOLO PARK
71. BELLFLOWER PARK
72. BLOOMFIELD PARK
73. CARMENITA PARK
74. DOWNEY PARK
75. EL NIDO PARK
76. IRWINDALE PARK
77. LIVE OAK PARK

TABLE 25

LOS ANGELES COUNTY

LOCATION, ATTENDANCE, AND EXPENDITURES OF PARK AND RECREATIONAL FACILITIES[a]

1950-51

Park or recreational facility	*Date of original development*[b]	*Population within one-mile radius*	*Attendance 1950-51*	*Expenditures 1950-51*[c]	*Net per capita expenditures*		*Total value of county improvements to June, 1952*	*Percent participation by city residents*[d]	*Location*	
					For population within one mile	*For total attendance*			*Inside city*	*Within one mile of city limits*
Regional										
Alondra Park and Lake	1946	10,000	689,352	$72,972	$7.30	$0.11	$235,839	66.7		x
Altadena Golf Course	1948	14,500	44,000	15,509	1.07	0.35	295,328	50.0		x
Arcadia County Park and Pool	1937	7,500	236,337	52,791	7.04	0.22	311,811	48.3	x	
Crescenta Valley Park	1948	7,500	24,769	8,597	1.15	0.35	28,805	45.0	x	
Dexter Park	1929	1,000	46,464	11,744	11.74	0.25	50,263	47.4		x
Eaton Canyon Park	1949	8,500	---	2,144	0.25	--	11,735	---		x
Garvey Memorial Recreation Center	1940	20,000	238,084	47,493	2.37	0.20	247,794	37.9		x
General Charles S. Farnsworth Park	1932	8,000	251,881	30,370	3.80	0.12	55,225	24.2		x
Ladera Park	1932	22,000	640,091	37,332	1.70	0.06	89,721	66.5	x	
Plummer Park	1938	39,000	361,485	38,882	1.00	0.11	285,817	77.0		x
Puddingstone Dam	1948	---	73,600[e]	4,035	--	0.05	1,382	---		x
San Dimas Canyon Park	1928	500	86,877	29,250	58.50	0.34	36,243	72.9		
Southwest Sportsman's Park	1949	35,000	46,562	15,314	0.44	0.33	66,784	---	x	
Tapia Park	1938	---	22,524	10,258	--	0.46	12,337	80.0		
Val Verde Park	1938	1,000	81,461	34,402	34.40	0.42	128,089	40.4		
Subtotal		174,500	2,843,487	$411,093	$2.27[f]	$0.16[f]	$1,857,173			
Local										
Agoura Recreation Center	1951	1,000	---	$638	$0.64		$7,090	---		x
Artesia Park	1949	7,000	25,400[e]	12,658	1.81	$0.50	47,198	---		
Athens Park	1947	20,000	121,797	21,340	1.07	0.18	58,356	71.3		x
Atlantic Avenue Park and Pool	1939	24,000	143,899	17,433	0.73	0.12	41,169	6.1		x
Avalon-Sepulveda Park	1949	7,000	132,535	18,909	2.70	0.14	57,683	30.2		
Bassett Park	1949	3,000	130,315	11,075	3.69	0.08	29,145	---		
Bell Gardens Park	1946	15,000	258,362	30,563	2.04	0.12	105,974	19.0		
Belvedere and Repetto Parks	1945	15,500	278,131	58,946	3.80	0.21	340,451	3.5		x
City Terrace Park	1931	26,000	132,313	22,163	0.85	0.17	57,996	11.0		x
Duarte Park	1950	7,000	25,900[e]	3,176	0.45	0.12	62,337	---		x
East Los Angeles Park	1948	11,500	176,462	32,622	2.84	0.18	89,669	10.0		
East Montebello Park	1944	14,000	214,710	30,003	2.14	0.14	133,054	33.6		x
El Nido Park	1951	5,000	---	1,758	0.35	---	4,298	---		x
Enterprise Park	1950	17,000	27,184	8,336	0.49	0.31	35,571	---		x
Glenhaven Park	1930	9,500	3,622	1,371	0.14	0.38	2,622	---		
Hacienda Park	1950	1,000	---	1,527	1.53	---	72,510	---		
Imperial Park	1951	15,500	---	1,543	0.10	---	6,534	---		x
Laguna Park	1947	31,500	138,130	30,349	0.96	0.22	122,847	39.3		x
Lakewood Pan-American Park	1945	11,000	236,336	32,207	2.93	0.14	149,550	23.4		x
Lambert Park	1949	13,000	117,848	11,663	0.90	0.10	25,311	20.0		x
La Puente Park	1949	4,000	103,979	17,901	4.48	0.17	135,074	3.6		x
Lawndale Community Center	1941	17,000	202,550	13,359	0.79	0.07	24,023	7.7		x
Lennox Park	1948	19,000	207,466	17,242	0.91	0.08	41,522	29.8		x
Little Lake Park	1950	13,000	---	1,042	0.08	---	90	---		
Lomita Park	1940	6,000	145,749	27,772	4.63	0.19	129,165	17.8		x
Mayfair Park	1950	9,000	451,000[e]	10,675	1.19	0.02	34,755	---		
McNees Park	1928	23,000	---	2,464	0.11	---	636	-		x
Michillinda Park	1924	16,000	5,654	6,606	0.41	1.17	12,285	30.0		x
Mona Park	1950	24,000	24,460	9,393	0.39	0.38	101,644	--		x
Mountain View Park	1950	19,000	50,445	13,987	0.74	0.28	51,156	10.7		x
H. M. Newhall Memorial Park	1948	3,000	20,073	18,765	6.26	0.93	193,149	---		
Palmdale Park	1948	3,000	41,000	18,197	6.06	0.44	151,975	---		
Paramount Park	1948	10,500	241,082	18,482	1.76	0.08	59,655	10.0		x
Jane Reynolds Park	1938	5,000	98,006	26,200	5.24	0.27	58,451	---		
F. D. Roosevelt Park	1938	44,000	418,084	50,327	1.14	0.12	242,989	18.9		x
Rosemead Park	1947	15,000	158,606	18,505	1.23	0.12	72,575	12.6		x
Rosewood Park	1949	3,000	63,498	18,431	6.14	0.29	56,295	---		
John S. Sims Park	1943	11,000	281,848	38,840	3.53	0.14	138,661	11.0		
Temple City Park	1925	13,000	125,205	9,484	0.73	0.08	6,473	---		x
Two Strike Recreation Center	1951	3,000	---	1,242	0.41	---	6,246	---		
Valleydale Park	1950	7,000	49,533	5,859	0.84	0.12	31,128	0.1		x
Wardlow Park	1949	8,000	38,659	18,138	2.27	0.47	59,949	11.0		

TABLE 25—Continued

LOS ANGELES COUNTY

LOCATION, ATTENDANCE, AND EXPENDITURES OF PARK AND RECREATIONAL FACILITIES [a]

1950-51

Park or recreational facility	Date of original development [b]	Population within one-mile radius	Attendance 1950-51	Expenditures 1950-51 [c]	Net per capita expenditures		Total value of county improvements to June, 1952	Percent participation by city residents [d]	Location	
					For population within one mile	For total attendance			Inside city	Within one mile of city limits
West Hollywood Park	1938	32,500	188,665	$33,624	$1.03	$0.18	$252,387	41.2		x
Will Rogers Memorial Park	1940	38,500	601,177	48,604	1.26	0.08	218,164	76.3		x
Subtotal		601,000	5,679,683	$793,419	$1.32 [f]	$0.14 [f]	$3,527,812			
Grand total		775,500	8,523,170	$1,204,512	$1.53 [f]	$0.14 [f]	$5,384,985			

NOTES:

[a] Not a complete listing.

[b] The date indicates the first year in which capital improvements took place and does not necessarily indicate the date of land acquisition.

[c] Excluding capital projects, and after deduction of associated revenues.

[d] The percentage figures representing participation by citizens of incorporated cities are as reported to the chief administrative officer on January 19, 1951, and were developed by recapitulation of the monthly activity reports and the personal appraisal of the responsible park directors in each area.

[e] Attendance for the year estimated from data for several months.

[f] Calculated only for parks for which population figures are available.

SOURCE: Los Angeles County Department of Parks and Recreation, "Annual Report, 1950-51"; also special information submitted by the department.

The development of the county-school cooperative recreation program is described in a report issued by the department. The report states:

> "Starting in the late 1930's, Los Angeles County gave its first cooperative help to the County schools' recreation program, but it was not until 1946 that the program was given impetus by the Los Angeles County Board of Supervisors, when they approved a budget covering salaries of play leaders for 29 school districts. Since then, requests for this cooperation have increased, and the board of supervisors has given approval in accordance with the California Education Code, Sections 24401 and 24411.
>
> "Sixty-six school districts requested play leaders this year, while the board of supervisors approved 280 play leaders to be used at 153 schools, which required a budget of $169,116." [48]

According to the director of the department:

> "The particular program of aid to cities and school districts for conducting recreation programs on school facilities originated during the Fiscal Year 1946-47 and was put into actual operation during 1947-48. The theory behind the program was that because of construction limitations and the postwar expansion program of all agencies, a proper means of providing expanding recreation facilities would be to explore the possibilities of using existing school facilities for local recreation purposes. In accordance, therewith, the proposal was made to the various agencies that if their school facilities were made available for recreation purposes, assistance would be given on behalf of the county in order to further this program. Accordingly, individual contracts were entered into with various agencies as this expanded program was developed." [49]

Under this program, the school districts furnish facilities, equipment and supplies; and the county pays for the salaries of the play leaders. Two programs are administered, one for 72 school playgrounds during the summer only, and the other for the summer and after school hours for 81 school playgrounds. Where need is shown, the county provides leaders during the summer months to schools located within incorporated cities. Currently 15 school districts within 13 cities are furnished with play leaders for a total of 37 schools.[50] This is calculated by the department to involve 18,918 hours of play leadership activity, representing about one-eighth of the estimated cost of $200,000 for the entire program in 1951-52.[51]

On the basis of the participation figures shown in Table 25, 66 percent, or about $1,000,000, of the expenditures of this division are associated with facilities and programs clasisfied as local in the 1951-52 budget. Considering that about one-fifth of the so-called local parks have more than 20 percent participation by city residents, it would appear that the expenditures for these local facilities, which amounted to 32 percent of net expenditures in 1950-51, support operations of county-wide benefit. Moreover, county support of playground leadership in 13 cities constitutes an additional element of recreational service provided in other than unincorporated areas. In terms of the 1951-52 budget estimates for this division, this would mean that of total expenditures in the neighborhood of $1,000,000 for local recreational facilities and programs, about $320,000 could be considered as supporting county-wide services while $680,000 could be considered as expended upon purposes largely serving the unincorporated areas only.

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[48] Los Angeles County Department of Parks and Recreation, *Cooperative Playground Program, 1951*, p. 1. School districts involved are listed in Appendix E, Exhibit 3.

[49] Letter to this committee from the Los Angeles County Director of Parks and Recreation, January 16, 1953.

[50] The cities and schools involved are shown in Appendix E, Table 8.

[51] The county-school cooperative recreation program is to be distinguished from arrangements between the county and other school districts, involving payment by the county for recreational services by the school districts, and cash grants to assist expansion of the recreational program. These matters are discussed below.

Through the music division the county administers a variety of vocal, instrumental and eurythmic programs, which are conducted at county recreation areas having appropriate facilities. Use of school or other local facilities is also involved in providing this service. Recently a music program was initiated for patients of the county general hospital. The budget for this division is not separately available, but the 1950-51 figures previously analyzed included the music program. Total participation in all music activity during 1950-51 was 66,731.

The county supervises nine beach areas but owns only two of them. These beaches are the most heavily used recreational facility under the department's administration. They supply eight miles of ocean frontage and are enjoyed by thousands during suitable weather. In fact, an attendance of 700,000 was reported by the Los Angeles newspapers for one day in July of 1952. Table 26 presents data with respect to the use of these beaches; county expenditures for their operation; and the value of county improvements.

Los Angeles County spent $308,111 for the operation of its beach facilities in 1950-51, exclusive of capital projects. These facilities were used by over 32,000,000 people in this same fiscal year. Of the total expenditures of over $300,000, approximately $111,000 was allocated to the two county-owned beaches; $154,000 to the four state-owned beaches; and the remainder, approximately $43,000, to the three city-owned beaches. The latter sum represents the cost of county lifeguard services provided at city beaches in response to requests by the three cities concerned. It has been recognized by the board of supervisors that many others than just the residents of the cities with beaches use these facilities, and that the county should therefore bear a proportionate part of beach operational expense. This is illustrated by a copy of a supervisorial resolution ordering the department of parks and recreation to provide lifeguard service to the City of Redondo Beach, reproduced as Exhibit 4, Appendix E. The county makes no capital outlays with respect to these city beaches.[52]

Three additional matters with respect to the park and recreation division merit discussion, since they relate to the provision and distribution of recreation services. These are (1) payments to school districts for grants-in-aid and contract services; (2) expenditures on capital projects; and (3) administrative services provided to special districts.

Almost 10 percent of department expenditures in 1950-51, amounting to $262,000, consisted of payments to various school districts for the twofold purpose of assisting the districts to expand their recreation programs and defraying the cost of the extension of school district recreational services to schools outside their district boundaries. This policy is reflected in the current budget. The department of parks and recreation states that about $304,000 was involved for 1951-52, with the programs in the City of Los Angeles ($150,000) and the City of Pasadena ($40,604) accounting for more than half the total. Roughly 10 percent of this sum was for the purpose of reimbursing districts for recreational services to schools not in their juris-

TABLE 26

LOS ANGELES COUNTY

ATTENDANCE, EXPENDITURES, AND VALUE OF IMPROVEMENTS AT BEACHES ADMINISTERED BY THE COUNTY

					Per capita expenditures		
Beach	*Beach frontage in feet*	*Population within a one-mile radius*	*Attendance 1950-51*	*Expenditures 1950-51*[a]	*For population within a one-mile radius*	*For total attendance*	*Total value of county improvements to June, 1952*
County-owned							
Torrance county beach	775	----	2,868,800	$27,860	----	$0.010	----
Zuma county beach	8,940	----	1,537,800	83,799	----	0.054	$252,887
City-owned							
Hermosa city beach	9,180	----	9,258,300	24,980	----	0.003	----
Manhattan city beach	3,940	----	2,921,700	4,664	----	0.002	----
Redondo city beach	3,980	----	2,367,500	14,053	----	0.006	----
State-owned							
Clifton State Beach	4,452	9,000	2,695,400	39,437	$4.38	0.015	68,720
El Porto State Beach	2,876	3,000	4,304,200	27,623	9.21	0.006	
Manhattan State Beach	4,753	9,000	3,540,500	27,277	3.03	0.008	
Redondo State Beach	3,629	15,000	3,127,600	31,627	2.11	0.010	
Subtotal, Expenditures				$281,320			
Administrative Charges[b]				26,793			
Total	42,525	36,000	32,621,800	$308,113	$4.24[c]	$0.009	$321,607

NOTES:

[a] Excluding capital projects, and after deduction of associated revenues.

[b] Includes county lifeguard boat ($18,924); beach sanitizer ($783); and general administration ($7,086).

[c] Computed for beaches with figures shown for population within a one-mile radius only.

SOURCE: Los Angeles County Department of Parks and Recreation, "Annual Report, 1950-51"; also special information submitted by the department.

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[52] In addition to lifeguard services provided to the three cities as outlined above, the county makes direct cash payments to the Cities of Avalon, Long Beach, Los Angeles and Santa Monica for the purpose of paying a share of city expenditures for lifeguards. For 1951-52 these cash payments amounted to $95,500.

diction.[53] Present county procedure with respect to this program consists in ascertaining how much is budgeted for *school facility recreation programs* by the school districts and cities requesting supplemental county aid. One-third of this amount is contributed by the county and subsequently spent by the administrator of the local program. As an example of the relative contributions by the county, the school district and the city, the 1951-52 arrangements which applied to the community recreation program centered in the Pasadena City School District were as follows:[54]

Budgeted by the Pasadena City School District and the City of Pasadena	$94,928
Contributed by Los Angeles County	31,642
Total for community recreation program	126,570
Payment by county to cover costs of recreational service for four schools not within the district	24,144
Total	$150,714

It would appear at first glance that these payments redound primarily to the benefit of children within cities, since the bulk of the program is associated with school districts inside cities. However, in those cases where the city limits lie well within the boundaries of the school district, such aid also benefits children from the unincorporated areas.

Under capital projects the 1951-52 budget included a total of $396,260 for recreation purposes. This amount was in addition to the department's budget, although the latter did include some capital outlays for items such as furniture and fixtures. In 1950-51 the capital projects budget amounted to $507,800 out of original requests totaling $2,265,000. In 1951-52 the department originally requested $2,068,147 for such outlays, but the board of supervisors approved projects only to the extent of the $396,260 mentioned above. A comparison of projects requested with those granted in fiscal 1952 is shown below.

Type of recreational facility	*1951-52 Capital projects*		*Allowance as a percentage of request*
	Requested	*Allowed*	
County Museum	$776,744	$77,215	9.9
Parks and playgrounds:			
Regional	541,835	203,395	37.5
Local	523,750	15,175	2.9
Total parks and playgrounds	$1,065,585	$218,570	20.5
Beaches:			
County-owned	$84,300	$3,400	4.0
State-owned	141,518	97,075	68.6
City-owned	----	----	----
Total beaches	$225,818	$100,475	44.5
Total	$2,068,147	$396,260	19.2

About one-fifth of all requests were approved, but the proportion approved varied widely among the various types of programs. While capital projects for the state-owned beaches were cut 31 percent, those for local parks and playgrounds were reduced 97 percent. It is of course true that much of this reduction in capital project activity resulted from curtailments imposed by the National Production Authority, but a change in basic policy is also indicated by the severe reduction in the amount requested for local parks. In fact, the chief administrative officer stated in his budget message,

> "It is my opinion that any additional construction in strictly local parks should be financed either wholly or at least partially by the local residents."[55]

Judging by the recommendations of the chief administrative officer in the preliminary budget for 1952-53, it would seem that this policy will be intensified in the future. It was stated in this document that,

> "Park construction recommendations are restricted entirely to those parks of a regional nature, from which the citizens from the entire county receive benefits."[56]

Furthermore, in the preliminary 1952-53 budget, after each capital project request, as itemized under parks and playgrounds classified as local, the following statement appeared:

> "Improvements in local parks are not recommended for inclusion in the capital project program for the Fiscal Year 1952-53, as a result of discussion by the board of supervisors relative to utilization of general fund money for local benefit."[57]

As was indicated in the earlier section relating to special districts in Los Angeles County, there are six park, recreation and parkway districts. The administration of five of these is performed by the department of parks and recreation. According to the director of the department, only a very minor part of the time of the top administrative personnel of the department is involved, with estimated expenditures of $3,000 to $4,000 per year. These five districts make nominal payments to the county to cover the costs of workmen's compensation and retirement programs and pay, in full, the costs of all direct county services for repairs and maintenance.

By way of summary, the following estimates are set forth with respect to the provision of park and recreation services in Los Angeles County. In 1951-52 the operating budget of the parks and recreation department amounted to $3,317,760. If capital outlays ($396,260) are added to this total, total budgeted expenditures amounted to $3,714,020. Crediting fees and other revenues collected by the department against this total, net spending would have amounted to $3,555,345. The preceding analysis indicates that the following approximate amounts may be considered as being spent on programs which do not directly benefit residents of incorporated cities.

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[53] Contract amounts are shown in Table 9, Appendix E, by school districts and for the years 1947-48 to 1952-53.

[54] The complete agreement is reproduced in Appendix E as Exhibit 5.

[55] *County Budget Fiscal Year Ending June 30, 1952*, Los Angeles County, Budget Message.

[56] *Recommendations for 1952-1953, Preliminary Budget*, Los Angeles County Chief Administrative Officer, May 6, 1952, p. 100H and ff.

[57] *Ibid.*

Park and recreation areas division—local areas	$680,000
Capital projects—local areas	15,175
Total direct expenditures	$695,175
Estimated departmental overhead (9.4%)	65,300
Total expenditures not directly benefiting residents of incorporated cities	$760,475

Of the total amount shown in the tabulation above, it may further be estimated that city residents contributed $451,900. This calculation is shown below:

Fund	*Estimated expenditures of direct benefit to unincorporated areas*	*Estimated amount paid by city residents*[a]
General	$174,150	$25,600
Salary	586,325	426,300
Total	$760,475	$451,900

[a] Calculated according to fund analysis shown in Table 13.

Education. Under this general heading the 1951-52 budget lists total outlays of $1,669,119, or 0.6 percent of total budgeted expenditures. The individual items included in the total for education are as follows:

Superintendent of schools	$359,565
County art institute	72,444
School library service	80,000
Public library	1,157,110
Total	$1,669,119

Of these four items, this study is concerned only with the county public library. Expenditures for the county library in 1951-52 were budgeted as follows:

Fund	*Amount budgeted 1951-52*
Public library	$1,147,546
Salary	9,564
Total	$1,157,110

These budgeted expenditures for the county library were met almost entirely by a special library tax rate levied only upon property owners in the areas served. For 1951-52 this tax rate amounted to $0.0717 for $100 of assessed valuation. The amount of $9,564 for librarian salaries was paid from the county salary fund, pursuant to Section 22137 of the Education Code.[58]

The county library system services the entire unincorporated area and 22 cities as well. Figure 29 shows the location of the 84 branches which are operated. Of these branches, 26 are located inside the 22 cities served by the county library. The cities served and those with more than one branch are listed below:

Avalon
Bell
Claremont
Compton
Culver City
El Monte
Gardena (3)
Hawthorne
Hermosa Beach
Huntington Park
Inglewood (2)
La Verne
Lynwood
Manhattan Beach
Maywood
Montebello
Monterey Park
San Fernando
San Gabriel
South Gate (2)
Torrance
West Covina

Ten branches are located in county institutions and the remaining 48 are located throughout the unincorporated areas roughly paralleling the distribution of population. The county also operates 24 part-time library stations, of which two are in cities served and three are in county institutions. A bookmobile service supplements library operations in the rural areas.

With respect to the 26 full-time branches within cities, those in nine cities are housed in city buildings rented by the county, while all of the others are housed in county facilities. It should be mentioned also that Monterey Park and Torrance have contracted for county library services in lieu of joining the library system and subjecting property owners to the county library tax rate.

County library service is extended without any direct charge to (1) residents, school attendees, or persons employed in the areas subject to the county library tax; (2) residents of cities which have reciprocal agreements for library services; and (3) members of the armed forces. Other users of the county library are subject to a nonresident fee of $2 per year. The 23 cities not served by the county library system maintain and operate their own libraries. There are also two library districts in Los Angeles County. Residents of these cities or districts may use the county library upon payment of the nonresident fee of $2 per year. This fee is waived for residents of Alhambra, Glendale and Santa Monica, since reciprocal library privileges have been worked out with the county.

Other than the fact that the salaries of librarians are paid from the county salary fund, thereby involving some amount of taxes paid by residents of cities not served by the county library system, county library service is paid for only by those who directly receive it. Moreover the amount of salary fund moneys involved is very small and *must* be met from the salary fund according to Section 22137 of the Education Code.

Charities, Hospitals and Corrections. This budget classification includes all welfare and correctional activities, such as the county hospital; aid to the aged, blind and children; indigent aid; jails and detention camps; and probation services. Budgeted expenditures totalled $192,686,070 in 1951-52, exactly two-thirds of the county budget. Expenditures for this service category were made from the county general and salary funds. The various agencies within this department were expected to collect $2,647,513 in 1951-52 in the form of fees and charges for their services. The county also receives large subventions and grants from both the state and federal governments to assist in the financing of many phases of these programs. In 1951-52 combined subventions and grants from all sources were budgeted at $122,089,766, or more than 63 percent of the total requirements of this budget category.

The particular county services within this general budget category which are of special concern to this study are those of the county hospitals and ambulance services. The department of charities administers three

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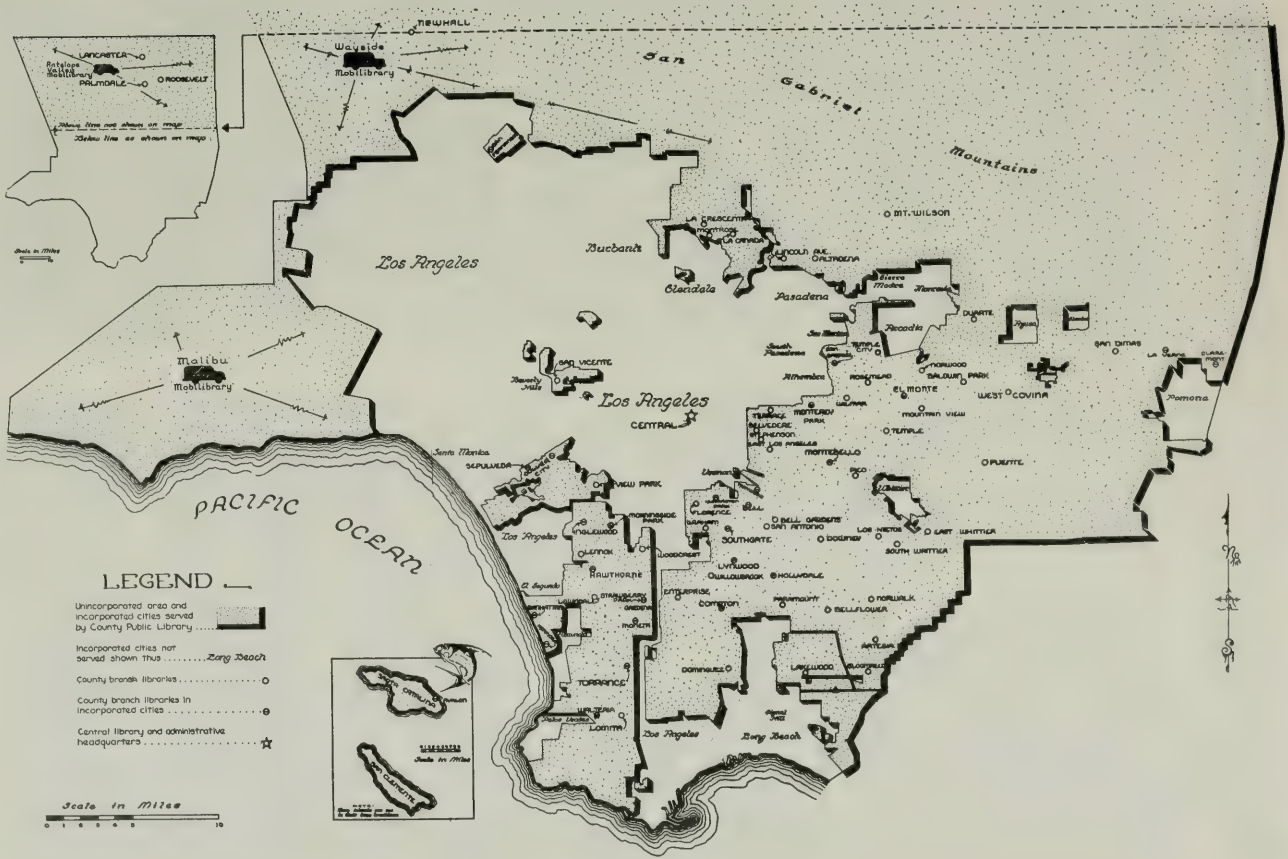
[58] Section 22137 provides: "The salary of the County Librarians shall be paid by each of the counties in equal monthly installments, at the same time and in the same manner and out of the same fund as the salaries of other county officers are paid."

FIGURE 29

LOS ANGELES COUNTY
AREAS SERVED BY THE COUNTY PUBLIC LIBRARY
1951



hospitals, three sanitariums and one home for the aged. The budgeted expenditures for these institutions in 1951-52 are shown below:

Institution	*Budgeted expenditures*	*Income*	*Net expenditures*
Los Angeles County General Hospital, Los Angeles	$16,391,621	$1,614,999	$14,776,622
Harbor General Hospital, Torrance	3,185,824	202,595	2,983.229
Long Beach General Hospital, Long Beach	909,251	28,076	881,175
Olive View Sanitarium, Olive View	3,613,012	198,959	3,414,053
Acton Camp, Acton	192,207	1,384	190,823
Warm Springs Camp, Warm Springs	128,745	4,656	124,089
Rancho Los Amigos, Downey	4,421,406	513,780	3,907,626
Totals	$28,842,066	$2,564,449	$26,277,617

Almost 29 million dollars was needed to finance the operations of these institutions during 1951-52, or 15 percent of all outlays for charities and corrections. They were expected to collect about 2.5 million dollars in fees and charges, most of this coming from non-indigent patients. Hospital services are available only to medical indigents, except that all persons suspected of having a communicable disease or a mental illness, or requiring emergency treatment, are also accepted as patients. Outpatient clinics are operated at the County General Hospital and the Harbor General Hospital, as well as in cooperation with a number of outside medical institutions.

The distribution of medical and hospital services in 1951-52 as reported by the chief administrative officer of Los Angeles County on August 8, 1952, is shown in Table 27.

TABLE 27

LOS ANGELES COUNTY
MEDICAL AND HOSPITAL SERVICES
1951-52

	Average daily load 1951-52	*Percent of all patients*	
		From incorporated cities	*From unincorporated areas*
General patients			
Los Angeles County General Hospital	2,632	90.54	9.46
Harbor General Hospital	448	92.85	7.15
Rancho Los Amigos	2,906	82.70	17.30
Acton Camp	229	95.00	5.00
Warm Springs Camp	144	95.00	5.00
Total, general patients	6,359		
Tuberculosis patients			
Los Angeles County General Hospital	311	90.54	9.46
Olive View Sanitorium	1,509	83.96	16.04
Harbor General Hospital	231	92.85	7.15
Long Beach General Hospital	332	92.02	7.98
Total, tuberculosis patients	2,383		
Outpatient clinic treatments			
Los Angeles County General Hospital	1,547	No data	No data
Harbor General Hospital	145	No data	No data
Outside Medical Relief	923		
Total, outpatient clinic treatment	2,615		

These data indicate that the proportion of city residents receiving county medical services is in every case higher than 79 percent, or the ratio of city to total county population. It is also higher than the ratio of city to total county assessed valuation, or 81 percent. A breakdown of the unincorporated area patients as between those from urban and rural areas is not available, but it is reasonable to assume that, as in the case of the summary figures, the number of patients from each type of area would be roughly proportional to the populations thereof.

Except for one hospital operated by the City of Los Angeles, there are no city hospitals in Los Angeles County. Other public hospitals are maintained by federal and state agencies.

In the annual report of the Los Angeles County Hospital for the fiscal year ended June 20, 1951, the following description of emergency and ambulance service appears:

> "In March, 1951, the Los Angeles County Emergency Aid Program was transferred from the sheriff's office to the department of charities and placed under the supervision and control of the hospital transportation department. The program provides twenty-minute ambulance service on any major highway in the unincorporated area of the County and necessary emergency hospital service. There are 37 hospitals under contract to the County and 38 ambulance companies, with 81 ambulances available. In addition, 13 cities have agreed to provide emergency services.
>
> "Ambulance calls are initiated by the sheriff's department or the local police in the area where an accident occurs. When the ambulance arrives, the driver is given an authorization slip with instructions to take the injured person or persons to the closest authorized hospital.
>
> "This is not a free service by the county. Patients, if financially able, are expected to pay for ambulance transportation and hospital first aid treatment. During the last fiscal year, there were 9,728 injured persons cared for, 5,872 of whom paid for charges incurred. The county assumed responsibility for the remaining 3,856 patients, in the amount of $60,372."

Thus, according to this statement these services are rendered on a cost basis unless indigents are involved. The county bears the expenses of indigent emergency patients, regardless of the location of the ambulance call.

Miscellaneous Budget Items

Several items remain to be discussed under the budget headings of miscellaneous ($8,727,010) and reserves ($5,813,960). Those items classified as miscellaneous herein merit discussion in this report. These are: (1) capital projects; (2) aid to other governments and nonprofit organizations; (3) reimbursement to subdividers.

Expenditures marked for capital projects in the 1951-52 budget are listed in the budget under the subtitle public works program, indicating the long-term nature of the construction involved. Thus, it should be understood that these expenditures are in addition to capital outlays included in the amounts budgeted for the various county departments, which generally include furniture, equipment and fixtures only. Capital projects, on the other hand, primarily relate to buildings and other permanent improvements.

For the Fiscal Year 1951-52, county departments requested capital projects involving an estimated total outlay of $37,752,533. The board of supervisors allowed projects in the amount of $4,955,802, or 13 percent of the total requested. Of the amount allowed, $4,767,159 was budgeted from the general fund moneys, while the balance of $188,643 was appropriated from special funds not involving ad valorem tax revenues. Table 28 presents a summary by general budget headings of the amounts requested and allowed in 1951-52.

The two budget headings of general government and charities, hospitals and corrections together account for more than 83 percent of the allowed expenditures for capital projects. The bulk of the 18 percent share under general government was allocated to government buildings. This amount ($780,148), for additions and alterations to the principal civic center in Los Angeles and various branch centers scattered throughout the county, is obviously a general overhead expense necessary for the administration of general government functions.

Capital projects for purposes of charities, hospitals and corrections amounted to $3,231,437, or 65.2 percent, of total allowed expenditures. This was by far the largest single category of capital projects. The benefits of these capital expenditures are, however, county-wide, since the services to which they are related are available to all county residents.

Most of the remaining capital expenditure items involve no questions of immediate concern here. It should be noted that offstreet parking projects were allotted $76,043, but these require no property tax levies upon county property owners. They are financed from seven development funds built up by revenues from parking meters located in Bellflower, Downey, East Los Angeles, Lancaster, Montrose, Temple City, and Walnut Park. By order of the board of supervisors, individual funds known as "development funds," have been created for individual areas in unincorporated sections where parking meters have been installed. The net proceeds, after paying for the meters and paying all maintenance and collection costs, are deposited in these funds, to be used for the rental or purchase of property for offstreet parking.

TABLE 28

LOS ANGELES COUNTY
CAPITAL PROJECTS REQUESTED AND ALLOWED
1951-52

Budget heading and project function	*Amount requested*	*Amount allowed*	*Percent of total allowed expenditures*
General Government:			
Government buildings	$12,289,476	$780,148	15.7
Storm drains	7,961,000	--	--
Aviation [a]	617,300	112,600	2.3
Total general government	$20,867,776	$892,748	18.0
Protection to Persons and Property:			
Forester and fire warden	$806,136	$123,497	2.5
Pound department	118,932	--	--
Civil defense	671,000	75,000	1.5
Agricultural department	29,535	8,035	0.2
Total protection to persons and property	$1,625,603	$206,532	4.2
Health and Sanitation:			
Health department—health centers	$742,870	$7,891	0.2
Charities, Hospitals, and Corrections	$11,697,126	$3,231,437	65.1
Education:			
County art institute	$358,175	$28,175	0.6
Recreation:			
County museum	$776,744	$77,215	1.6
Parks and playgrounds	1,065,585	218,570	4.4
Beaches	225,818	100,475	2.0
Total recreation	$2,068,147	$396,260	8.0
Miscellaneous Unclassified:			
Arboretum	$259,613	$86,716	1.8
Offstreet parking [b]	103,223	76,043	1.5
Other	30,000	30,000	0.6
Total miscellaneous	$392,836	$192,759	3.9
Total	$37,752,533	$4,955,802	100.0

NOTES:

[a] Financed out of the aviation fund.

[b] Financed out of development funds accruing from parking meter revenues.

SOURCE: "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County.

The item of aid to other governments and nonprofit organizations is included here since the total amount budgeted in 1951-52 ($388,078), from the general fund, includes $95,500 for direct payments to four cities. This amount constitutes the county's contribution towards city lifeguard expenses. The grants to these cities are shown below:

City	*Amount budgeted 1951-52*
Avalon	$6,500
Long Beach	29,666
Los Angeles	29,667
Santa Monica	29,667
Total	$95,500

Like the direct provision of lifeguard services to the three Cities of Hermosa Beach, Manhattan Beach, and Redondo Beach, these cash payments are indicative of county recognition of the regional use made of city beaches, and therefore of its responsibility for assuming some of the costs thereof.

The remaining items in this category, amounting to $292,578, are of county-wide interest, and assist various historical, recreational, conservation, botanical, and planning organizations. For example, $154,228 was set aside for the music commission, which directs such activities as the county band, Hollywood bowl, symphonies for youth, and the Easter sunrise service. A sum of $80,000 was also granted to the county centennial commission and $80,000 was budgeted for the California Arboretum Foundation.

The county also reimburses subdividers for extra costs incurred by them in installing subdivision sewer systems which are too large for immediate needs, but which will be able to handle the additional loads resulting from future subdivisions in the vicinity. This policy was initiated by the board of supervisors in 1947, when it became clear that the construction of sewer systems designed to serve only the current population was extremely short-sighted and costly. Since private subdividers could not be expected to charge residents of present subdivisions with all the costs of a sewer system designed for future growth, the county adopted the policy of providing financial assistance whereby the required system could be installed and the additional costs subsequently recovered from the residents of later subdivisions.

The 1951-52 budget further allowed $529,150 for such subdivider reimbursement. This expenditure should actually be considered as a revolving fund, which will be repaid in the course of a few years. The current budget itemizes $454,000 as revenue resulting from recoveries during 1951-52 of similar payments to subdividers made in prior years. Thus, no net expense to the county is really involved, unless one wishes to argue that the program involves interest on the funds temporarily invested in sewer facilities. Such interest, at current rates, could amount to 15 to 20 thousand dollars per year. However, even if such interest costs are admitted, this appears to be an expenditure which may be justified in the interests of well-planned residential development in Los Angeles County.

Reserves

Budgeted reserves comprised 2 percent of the total budget in 1951-52, or a total of $5,813,960. These reserves are shown below:

Unappropriated reserves	$93,960
General reserve	5,720,000
Total reserves	$5,813,960

Los Angeles County appears to have an extremely moderate policy with respect to reserves of all kinds. Despite its size and expenditures, reserves constitute a smaller proportion of the total budget than for many California counties. The amount of $93,960 for unappropriated reserves is exceedingly small, and expenditures from this reserve are for services of a county-wide nature.

The general reserve is held largely to guard against the contingency of a serious economic recession which would cause a heavy increase in the county's aid programs. There is little likelihood that any expenditures will be charged against this reserve during 1951-52, but even if there should be, such expenditures would obviously be in the general interest of the entire county.

Summary

The foregoing analysis of the various services provided by Los Angeles and the extent to which these services are provided to residents of the county living in incorporated, unincorporated urban, or rural areas at the same or on a different level, is summarized in the two following tables. Table 29 shows that of a total of $278,986,743 of net county expenditures (i.e., after allowing a credit for the various types of revenues collected by the departments concerned), $271,867,040, or 97.4 percent, of this total was budgeted for the provision of county services which were county-wide in nature. With respect to the remainder, $7,119,703, or 2.6 percent of the total, questions have been raised in preceding sections as to the less than county-wide services provided thereby. The percentage of net expenditures which raises possible equity questions varies considerably for the different budget categories, ranging from zero in the case of highways and bridges, education, charities and miscellaneous, to 70.7 percent in the case of health and sanitation. The largest dollar amount occurs with protection to persons and property, where $3,237,907 is considered to support less than county-wide operations. This amounts to 39 percent of the net expenditures budgeted for this particular category. Thus, four budget categories show expenditures supporting services, the distribution and financing of which may favor some county residents as against others. These are general government, protection to persons and property, health and sanitation, and recreation and parks.

Table 30 summarizes the analysis of the services which were included above in these four budget categories. It also shows the distribution of these services and provides an estimate of the costs which are paid by city residents not receiving these services. To meet these total expenditures of $7,119,703, it is estimated that $5,618,500 in revenues may be traced to particular groups of county property taxpayers and to receipts from the state subvention from liquor license fees. Thus Table 30 indicates that city residents not receiving the services included in the amount of $7,119,703 are directly and currently paying $4,104,390 toward the costs of those services. Residents of the five cities of Beverly Hills, Long Beach, Los Angeles, Pasadena, and Vernon contribute $1,242,800 toward county health services performed outside those cities, while all city residents contribute $2,861,590 toward the other services which are provided, with minor exceptions, outside all cities. The amounts which have been calculated as contributed by city residents toward paying the costs of county services not received by them are those which may be referred to as "subsidies" conferring benefits upon residents of the unincorporated areas only.

TABLE 29

LOS ANGELES COUNTY
DISTRIBUTION OF NET EXPENDITURES FOR COUNTY SERVICES, BY BUDGET CATEGORY
1951-52

Budget category	*Net expenditures*[a]	*Expenditures affecting the entire county*[b]	*Percent of total net expenditures*	*Expenditures affecting less than the entire county*[c]	*Percent of total net expenditures*
General government	$31,273,322	$30,844,322	98.6	$429,000	1.4
Protection to persons and property	8,309,862	5,071,955	61.0	3,237,907	39.0
Health and sanitation	3,808,266	1,115,945	29.3	2,692,321	70.7
Highways and bridges	26,268,642	26,268,642	100.0	[d]	[d]
Recreation and parks	4,090,795 [e]	3,330,320	81.4	760,475	18.6
Education	1,518,589	1,518,589	100.0	----	--
Charities, hospitals, and corrections	189,493,557	189,493,557	100.0	----	--
Miscellaneous, reserves, and interest	14,223,710 [f]	14,223,710	100.0	----	--
Total	$278,986,743	$271,867,040	97.4	$7,119,703	2.6

NOTES:

[a] Budgeted expenditures less a total of $10,318,782 of fees, charges, and other revenues related to various services.

[b] Expenditures in this column either support county services which are clearly county-wide or involve considerations of revenue sources and county policy which create no inequities for any groups of county taxpayers.

[c] Expenditures in this column are financed to some extent out of county property tax levies and other county-wide revenues, but they provide services which are less than county-wide.

[d] Inadequate data. As explained in the section describing highways and bridges, there is some reason to believe that unincorporated urban areas may be receiving a higher level of street service, primarily in the form of urban secondary streets.

[e] Including $396,260 in capital projects budgeted under miscellaneous.

[f] Less $396,260 in capital projects for parks and recreational facilities and included here in the latter category.

SOURCE: Analyses of county department operations and expenditures. Budget figures are from the "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County.

TABLE 30

LOS ANGELES COUNTY
COUNTY SERVICES PROVIDED TO LESS THAN THE ENTIRE COUNTY AND FINANCED BY TRACEABLE REVENUES
1951-52

			Estimated amount of traceable revenues			
Budget categories and departments	*Net expenditures affecting less than the entire county*	*Estimated total traceable revenues*	*Financing county services outside all cities*	*Collected from residents of all cities*	*Financing county services excluding five cities*[a]	*Collected from residents of the five cities*[a]
General government:						
Department of county engineer and surveyor	$141,000	$118,100	$118,100 [b]	$96,100	---	---
Regional planning commission	288,000	250,400	250,400 [c]	203,890	---	---
Total	$429,000	$368,500	$368,500	$299,990		
Protection to persons and property:						
Sheriff department	$3,012,400	$2,410,200	$2,410,200	$1,961,080	---	---
Department of county forester and fire warden	119,000	100,200	100,200	81,520	---	---
Pound department	106,507	82,500	82,500	67,100	---	---
Total	$3,237,907	$2,592,900	$2,592,900	$2,109,700	---	---
Health and sanitation:						
Health department	$2,692,321	$2,101,500	---	---	$2,101,500	$1,242,800
Recreation:						
Department of parks and recreation	760,475	555,600	$555,600 [d]	$451,900	---	---
Total	$7,119,703	$5,618,500	$3,517,000	$2,861,590	$2,101,500	$1,242,800
Percentage of total traceable revenues	---	100.0	62.6		37.4	

NOTES:

[a] The five cities are: Beverly Hills, Long Beach, Los Angeles, Pasadena, and Vernon.

[b] Services valued at about $13,000 are directly rendered to certain cities, but have been omitted from this calculation.

[c] Some amounts of service, the value of which has not been calculated, are rendered to certain cities.

[d] Significant amounts of services are, however, received by city residents, but the value of these services cannot be calculated.

SOURCE: Analyses of county department operations and expenditures. Budget figures from the "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County.

Table 31 presents a calculation of the possible reductions in property tax rates which might result if the city share of revenues traceable to meeting expenditures for various services which are less than county-wide were shifted exclusively to taxpayers residing outside cities. For all cities, the reduction in property tax rates as calculated on the basis of assessed valuations for 1951, and net expenditures for 1951-52, would amount to $0.0608 per $100 of assessed valuation. Five cities, Beverly Hills, Long Beach, Los Angeles, Pasadena, and Vernon would receive an additional tax rate reduction amounting to $0.0363 per $100 of assessed valuation, or a total of $0.0971. Thus county tax rates would be lowered to $1.5783 in all cities except the five cities listed below and to $1.5420 in these latter five cities. In turn the county tax rate in the unincorporated areas would have to be increased by $0.3806 per $100 of assessed valuation, making the total county rate in these areas $2.0197, if the amount of $4,104,390 of expenditures of less than county-wide benefit were shifted entirely to taxpayers outside cities.

TABLE 31

LOS ANGELES COUNTY
HYPOTHETICAL COUNTY PROPERTY TAX RATES WHICH RESULT FROM SHIFTING THE CITY SHARE OF THE TRACEABLE COST OF LESS-THAN-COUNTY-WIDE SERVICES FROM CITY TO NONCITY RESIDENTS
1951-52

Tax area	*Assessed valuation 1951-52*	*City share of the traceable cost of less-than-county-wide-services*	*Tax rate required to raise the city share*	*Total increase or decrease in county tax rate*	*Basic county tax rate 1951-52*	*Hypothetical county tax rate*
Tax Rate Reductions:						
All Cities	$4,709,128,490	$2,861,590	$0.0608	$0.0608	$1,6391	$1.5783[a]
Beverly Hills Long Beach Los Angeles Pasadena Vernon	3,425,656,545	1,242,800	0.0363	0.0971	1.6391	1.5420[b]
Tax Rate Increases:						
All unincorporated areas	1,078,310,985	4,104,390	0.3806	0.3806	1.6391	2.0197

NOTES:

[a] The hypothetical rate computed for "all cities" would apply in all cities except Beverly Hills, Long Beach, Los Angeles, Pasadena, and Vernon. These cities would gain an additional reduction since the county health department provides no services to them.

[b] The hypothetical rate computed for these five cities reflects the fact that no county health services are provided in addition to the other services which are less than county-wide.

SOURCE: Assessed valuations from the "Taxpayers' Guide, 1951," Los Angeles County; city share of costs from Table 30.

Two limitations with respect to the data presented in Tables 30 and 31 must be kept in mind. First, they include only so-called "traceable revenues" which consist for the most part of revenues from property taxes. Only 78.9 percent of less than county-wide services can be accounted for by these "traceable" revenues; the remaining 21.1 percent cannot be "traced" as being met by other county moneys. Secondly, these tables are based on the assumption that the county services presented are provided in their entirety to areas outside cities. Actually, in the cases of some cities, significant amounts of some of these services are provided to their residents, or to their governmental departments.

CITY SALES TAXES AND PARKING METER FEES

Many of the cities of Los Angeles County levy retail sales and use taxes and collect parking meter fees, and revenues from these two sources are collected both from city and noncity residents. Revenues from these sources are shown, by city, for fiscal 1951 in Table 32.

TABLE 32

LOS ANGELES COUNTY
CITY REVENUES FROM RETAIL SALES TAXES AND PARKING METER FEES
1950-51

City	*Retail sales taxes*	*Parking meter fees*
Alhambra	$281,813	$68,729
Arcadia	----	----
Avalon	23,374	----
Azusa	35,177	----
Bell	46,280	----
Beverly Hills	376,916	----
Burbank	329,398	48,685
Claremont	12,832	----
Compton	----	----
Covina	35,721	14,876
Culver City	151,656	24,999
El Monte	----	20,482
El Segundo	----	----
Gardena	----	----
Glendale	619,694	95,589
Glendora	13,114	----
Hawthorne	52,272	----
Hermosa Beach	62,642	21,071
Huntington Park	293,310	92,102
Inglewood	308,118	69,050
La Verne	----	----
Long Beach	--	135,329
Los Angeles	11,925,178	86,050
Lynwood	$59,915	----
Manhattan Beach	22,753	$20,273
Maywood	34,930	----
Monrovia	----	----
Montebello	45,822	----
Monterey Park	10,515	----
Palos Verdes Estates	----	----
Pasadena	745,219	----
Pomona	215,694	58,977
Redondo Beach	77,208	22,128
San Fernando	120,667	28,258
San Gabriel	47,875	----
San Marino	----	----
Santa Monica	928,047	106,224
Sierra Madre	----	----
Signal Hill	----	----
South Gate	----	----
South Pasadena	----	----
Torrance	56,069	----
Vernon	----	----
West Covina		----
Whittier	124,971	45,355
Total	$17,056,180	$958,177

SOURCE: "Annual Report of Financial Transactions of Municipalities and Counties for the Fiscal Year Ending June 30, 1951." Office of the State Controller.

In the absence of specific counts there is, of course, no way to determine the amounts of sales taxes or parking meter fees collected from the residents of unincorporated areas. However, the contributions of these residents of unincorporated areas to city treasuries on these accounts may be calculated roughly on the basis of recent estimates of the State Board of Equalization that 20 percent of all taxable sales made within cities are made to persons who reside outside corporate city limits.[59] If this estimate is accepted, the amounts of sales and parking meter fees paid to cities by residents of unincorporated areas during fiscal 1951 would have approximated the figures shown below:

	Total revenues	*Estimated share paid by noncity residents*
Sales taxes	$17,056,180	$3,411,000
Parking meters	958,177	192,000
Total	$18,014,357	$3,603,000

COUNTY AND SPECIAL DISTRICT TAXES PAID BY CITIES

In contrast to the preceding section on city taxes and fees paid by residents of areas outside incorporated cities, the following payments by cities to the county and to special districts are worthy of mention. Many cities pay taxes to the county and to special districts on various city properties. In fiscal 1951, 14 cities paid a total of $55,845 in county and special district taxes levied upon city facilities located outside city limits. The amounts of such property taxes and the city facilities involved are listed below.

City	*Taxes paid*	*Facilities Taxed*
Alhambra	$2,992.29	Waterworks
Arcadia	804.08	Waterland
Beverly Hills	3,879.21	Waterworks
Covina	908.35	Waterworks
Glendale	11,153.31	Reservoir and housing project
Long Beach	1,872.58	Reservoir, waterworks and public park
Monrovia	1,867.89	Recreation land and sewer farm
Monterey Park	1,367.68	Waterworks
Pasadena	22,097.04	Reservoir, waterworks, rifle range and vacant land
Pomona	708.17	Waterworks and land
Santa Monica	5,361.21	Waterworks and airport
Sierra Madre	65.39	Watershed land
Signal Hill	653.03	Watershed land
Whittier	2,114.61	Watershed land, sewer farm and baseball park
Total	$55,844.84	

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[59] "What's Next in Local Sales Taxes?", State Board of Equalization, Sacramento, California, January, 1951, p. 17.

APPENDIX

APPENDIX A

TABLE 1

NAPA COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES AND NET OUTLAYS
1951-1952

County function	*Budgeted expenditures*	*Associated revenues*		*Net outlay*
		Fees and charges paid by individuals	*Intergovernmental charges*	
1. General government				
Board of supervisors	$18,150	$7,700	------	$10,450
Retirement	14,600	------	------	14,600
County clerk	16,293	7,700	------	8,593
Auditor	30,796	------	------	30,796
Special auditing	900	------	------	900
Treasurer	11,595	1,600	------	9,995
Assessor	47,820	50	------	47,770
Tax and license collector	13,550	3,370	------	10,180
District attorney	17,800	------	------	17,800
Coroner	5,020	------	------	5,020
Public administrator	459	------	------	459
Surveyor	1,005	------	------	1,005
Planning commission	9,750	500	------	9,250
Primary elections	21,200	------	------	21,200
Registration deputies	300	------	------	300
Superior courts	15,375	------	------	15,375
Justice courts	21,770	------	------	21,770
Trial juries, interpreters and witnesses	4,800	------	------	4,800
Grand jury	4,100	------	------	4,100
Law library	4,000	------	------	4,000
Court reporter	800	------	------	800
Legal counsel	9,200	------	------	9,200
County buildings	29,600	------	------	29,600
County grounds	6,800	------	------	6,800
Public works	72,180	------	------	72,180
Total general government	$377,863	$20,920	------	$356,943
2. Protection to persons and property				
Sheriff	$91,570	$1,700	------	$89,870
Constables	6,020	------	------	6,020
County jail	7,350	------	$840	6,510
Examinations	1,200	------	------	1,200
Civil defense	6,800	------	------	6,800
Recorder	20,910	21,000	------	Cr. (90)
Sealer of weights and measures	4,945	------	------	4,945
Humane service	10,105	------	3,300	6,805
Pest control	600	------	------	600
Agricultural commissioner	25,230	------	------	25,230
Agricultural extension service	15,319	------	------	15,319
Predatory animal control	7,344	------	------	7,344
State forestry—fire contract	20,565	------	------	20,565
Fire protection	36,450	------	------	36,450
Water conservation	3,200	------	------	3,200
Soil conservation	2,000	------	------	2,000
Insurance	16,300	------	------	16,300
Total protection to persons and property	$275,908	$22,700	$4,140	$249,068
3. Health and sanitation				
Health department	$78,630	$900	$8,950	$68,780
Tubercular care	35,600	------	------	35,600
Total health and sanitation	$114,230	$900	$8,950	$104,380
4. Highways and bridges				
Administration and engineering	$39,400	------	------	$39,400
Highway lighting	4,200	------	------	4,200
Primary roads	351,000	------	------	351,000
Secondary roads	237,470	------	------	237,470
Acquisition	37,750	------	------	37,750
Overhead	11,400	------	------	11,400
Total highways and bridges	$681,220	------	------	$681,220

TABLE 1—Continued

NAPA COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES AND NET OUTLAYS
1951-1952

County function	*Budgeted expenditures*	*Associated revenues*		*Net outlay*
		Fees and charges paid by individuals	*Intergovernmental charges*	
5. Education				
Superintendent of schools	$14,137	------	------	$14,137
Board of education	700	------	------	700
Mentally retarded program	7,200	------	------	7,200
County library	34,570	------	$6,100	28,470
Total education	$56,607	------	$6,100	$50,507
6. Charities and corrections				
County physician	$4,075	------	------	$4,075
Home for old people	46,665	$800	------	45,865
Welfare administration	94,854	------	------	94,854
Aid to needy children	290,498	------	------	290,498
Aid to needy blind	53,053	------	------	53,053
Aid to needy aged	991,524	2,600	------	988,924
General relief	35,800	------	------	35,800
Hospitalization—indigent medical care	56,000	500	------	55,500
Probation department	10,050	------	------	10,050
Detention home	8,395	------	------	8,395
Care juvenile court wards	17,300	------	------	17,300
Reform schools	2,000	------	------	2,000
Homes for feeble-minded	8,000	3,500	------	4,500
Hospitals for insane, narcotics	2,000	------	------	2,000
Examination and care of the insane	11,000	------	------	11,000
Indigent burials	2,125	------	------	2,125
Veterans welfare officer	22,090	------	------	22,090
Total charities and corrections	$1,655,429	$7,400	------	$1,648,029
7. Miscellaneous				
Advertising county resources	$14,300	------	------	$14,300
Rebates and refunds	14,100	------	------	14,100
Airports	16,330	$17,500	------	Cr. (1,170)
Total miscellaneous	$44,730	$17,500	------	$27,230
8. Reserves	$184,515	------	------	$184,515
Grand total	$3,390,502	$69,420	$19,190	$3,301,892

SOURCE: "Final Budget for the Fiscal Year July 1, 1951, to June 30, 1952," Napa County.

APPENDIX B

TABLE 1

SACRAMENTO COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES AND NET OUTLAYS
1951-1952

County function	*Budgeted expenditures*	*Associated revenues*		*Net outlay*
		Fees and charges paid by individuals	*Intergovernmental charges*	
I. General government				
Board of supervisors	$30,042	------	------	$30,042
Assessor's plat books	13,324	------	------	13,324
County clerk	73,172	$56,000	------	17,172
Auditor	87,066	50	------	87,016
Civil service board	17,317	------	------	17,317
County executive and purchasing agent	49,337	------	------	49,337
Treasurer	49,440	12,500	$600	36,340
Assessor	221,119	150	------	220,969
Tax (and license) collector	71,510	150	------	71,360
District attorney	114,998	7,000	------	107,998
Coroner and public administrator	72,763	7,000	------	65,763
Planning commission	21,772	------	------	21,772
General county garage	19,993	------	------	19,993
Public defender	18,763	------	------	18,763
Primary elections	83,000	------	------	83,000
Special elections	1,000	------	------	1,000
North Sacramento municipal court	19,200	------	------	19,200
Superior courts	101,405	------	------	101,405
Justice courts	47,901	------	------	47,901
Building inspector	45,715	60,200	------	Cr. (14,485)
Grand jury	1,265	------	------	1,265
Law library	9,620	------	------	9,620
Sacramento municipal courts	142,161	------	59,000	83,161
Courthouse and Hall of Records and grounds	104,764	------	------	104,764
Small claims court	1,880	------	------	1,880
Central appliance department	7,284	------	------	7,284
Total general government	$1,425,811	$143,050	$59,600	$1,223,161
II. Protection to persons and property				
Sheriff	$333,605	$5,800	$3,600	$324,205
Constables	24,045	900	------	23,145
County jail	87,410	------	9,700	77,710
Branch jail No. 1, Folsom Road Camp Branch jail No. 2, Airport Road Camp	247,970	40,000	------	207,970
Recorder	85,341	160,000	------	Cr. (74,659)
Sealer of weights and measures	20,638	------	------	20,638
Humane service	1,200	------	------	1,200
County poundmaster	20,099	------	------	20,099
Fish and game	1,000	------	------	1,000
Agricultural commissioner	38,839	3,050	------	35,789
Agricultural extension service	16,545	------	------	16,545
Livestock inspector	2,160	------	------	2,160
Predatory animal control	3,000	------	------	3,000
Civil defense	9,350	------	$1,200	8,150
Compensation insurance	25,200	------	------	25,200
Fire and burglary insurance	8,500	------	------	8,500
Public liability insurance	24,000	------	------	24,000
Total protection to persons and property	$948,902	$209,750	$14,500	$724,652
III. Health and sanitation				
Health department	$118,266	$4,100	$14,750	$99,416
Tubercular care	4,000	------	------	4,000
Weimar sanitarium	594,862	------	------	594,862
County dumps	500	------	------	500
Total health and sanitation	$717,628	$4,100	$14,750	$698,778

TABLE 1—Continued

SACRAMENTO COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES AND NET OUTLAYS
1951-1952

County function	*Budgeted expenditures*	*Associated revenues*		*Net outlay*
		Fees and charges paid by individuals	*Intergovernmental charges*	
IV. Roads and bridges				
Administration and engineering	$53,000	$300	------	$52,700
Primary roads and bridges	2,626,600	------	$1,400	2,625,200
Secondary roads and bridges	545,000	------	------	545,000
Equipment secondary	21,787	------	------	81,787
Equipment primary	60,000			
Total roads and bridges	$3,306,387	$300	$1,400	$3,304,687
V. Recreation				
County recreation	$22,940	------	------	$22,940
VI. Charities and corrections				
Hospital	$2,714,178	$76,000	------	$2,638,178
Welfare administration	546,004	------	------	546,004
Aid to needy children	2,319,422	------	------	2,319,422
Aid to needy blind	291,156	------	------	291,156
Aid to needy aged	5,694,478	------	------	5,694,478
General relief	284,000	------	------	284,000
Dental department	7,885	------	------	7,885
State institutions	63,400	7,000	------	56,400
Probation department	46,763	------	------	46,763
Detention home, juvenile hall	91,730	4,500	------	87,230
Private homes and institutions	29,970	------	------	29,970
Veterans' welfare officer	32,156	------	------	32,156
Total charities and corrections	$12,121,142	$87,500	------	$12,033,642
VII. Miscellaneous				
Advertising county resources	$69,555[a]	------	------	$69,555
Fairs and exhibits	4,500[a]	------	------	4,500
Airports	2,400[a]	------	------	2,400
Rebates and refunds	6,585[a]	------	------	6,585
County construction	833,000	------	------	833,000
Employees retirement	221,670[a]	------	------	221,670
Total miscellaneous	$1,137,710	------	------	$1,137,710
VIII. Education				
Superintendent of schools	$48,611	------	------	$48,611
Board of education	2,830	------	------	2,830
Special training schools	75,865	------	$7,183	68,682
County library	100,649	------	------	100,649
Total education	$227,955	------	$7.183	$220,772
IX. Unappropriated reserves	$356,949	------	------	$356,949
Grand total	$20,265,424	$444,700	$97,433	$19,723,291

NOTE: [a] Classified with general government (administrative) items.

SOURCE: "Approved Budget for the Fiscal Year Ending June 30, 1952," Sacramento County.

APPENDIX C

TABLE 1

KERN COUNTY

BUDGETED EXPENDITURES, ASSOCIATED REVENUES, AND NET OUTLAYS

1951-52

		Associated revenues		
County function	*Budgeted expenditure*	*Fees and charges paid by individuals*	*Intergovernmental charges*	*Net outlay*
I. GENERAL GOVERNMENT				
Board of supervisors	$144,670	----	----	$144,670
Personnel department	52,542	----	----	52,542
County clerk	115,204	$25,000	----	90,204
Auditor	130,973	30	----	130,943
Treasurer	43,749	3,000	----	40,749
Assessor	240,765	----	----	240,765
Tax and license collector	86,730	50	----	86,680
District attorney	139,365	----	----	139,365
Coroner and public administrator	33,765	3,000	----	30,765
County surveyor	74,148	----	----	74,148
Planning commission	37,438	----	----	37,438
Purchasing agent	43,634	----	----	43,634
Garage	169,757	----	----	169,757
County employees' retirement	2,030	----	----	2,030
County counsel	30,093	----	----	30,093
Elections (county clerk)	91,560	----	----	91,560
Elections (supervisors)	50,000	----	----	50,000
Superior court	95,510	----	----	95,510
Justices of the peace	152,805	----	----	152,805
Grand jury	4,000	----	----	4,000
Law library	11,960	4,820	----	7,140
Buildings and grounds	280,465	----	----	280,465
Building and safety department [a]	100,470	85,000	----	15,470
Duplicating department [a]	36,910	----	----	36,910
Chamber of commerce [a]	70,770	----	----	70,770
Fairgrounds and buildings [a]	72,614	----	----	72,614
County retirement advance reserve [a]	425,000	----	----	425,000
Total general government	$2,736,927	$120,900	----	$2,616,027
II. PROTECTION TO PERSONS AND PROPERTY				
Sheriff	$540,215	$2,000	----	$538,215
Constables	53,950	----	----	53,950
Jail	119,407	----	$4,000	115,407
Industrial road camp	271,525	----	----	217,525
Industrial farm	328,355	53,088	----	275,267
Recorder	83,020	85,000	----	Cr. (1,980)
Sealer of weights and measures	40,128	----	----	40,128
County Wildlife Resources Commission	6,620	----	----	6,620
Agricultural commissioner	163,054	----	----	163,054
Agricultural Extension Service	48,493	----	----	48,493
Livestock and milk inspector	3,235	----	----	3,235
County fire department	1,228,116	----	170,000	1,058,116
Insurance	149,000	5,000	----	144,000
Civil defense and disaster council	20,659	----	----	20,659
Radio communication department	85,322	----	1,560	83,762
Total protection to persons and property	$3,141,099	$145,088	$175,560	$2,820,451
III. HEALTH AND SANITATION				
County health department	$589,558	----	----	$589,558
Stony Brook Retreat and Preventorium	502,345	----	----	502,345
Total health and sanitation	$1,091,903	----	----	$1,091,903
IV. HIGHWAYS AND BRIDGES				
Highways and bridges	$2,117,640	----	----	$2,117,640
Road commissioner	157,380	----	----	157,380
Permanent roads	143,660	----	----	143,660
Total highways and bridges	$2,418,680	----	----	$2,418,680

V. RECREATION				
Kern County Museum	$34,385	----	----	$34,385
Parks and recreational areas	427,817	$12,000	----	415,817
Veterans' memorial buildings	10,195	----	----	10,195
Memorial Building and grounds	1,200	----	----	1,200
West Side Armory	4,000	----	----	4,000
Veterans' Service Building	1,450	----	----	1,450
Recreational and cultural commission	150,040	----	----	150,040
Total recreation	$629,087	$12,000	----	$617,087
VI. CHARITIES AND CORRECTIONS				
Kern General Hospital	$2,938,245	$97,000	----	$2,841,245
Welfare administration	547,586	----	----	547,586
Welfare—medical social service	58,449	----	----	58,449
Welfare—direct financial aid	7,577,000	----	----	7,577,000
Welfare—buildings and grounds	7,255	----	----	7,255
Probation department	158,279	----	----	158,279
Juvenile home	132,578	2,000	$15,000	115,578
Juvenile forestry camp	110,720	----	----	110,720
Correctional institutions and state hospitals	55,000	----	----	55,000
Burial plots—veterans	3,270	----	----	3,270
Burial plots—indigents	5,300	----	----	5,300
Kern County veterans service	43,723	----	5,000	38,723
Total charities and corrections	$11,637,405	$99,000	$20,000	$11,518,405
VII. MISCELLANEOUS				
Airports	$132,588	----	----	$132,588
Public works department	508,827	----	----	508,827
Lerdo buildings and grounds	48,995	----	----	48,995
Experimental farm	32,591	----	----	32,591
Total miscellaneous	$723,001	----	----	$723,001
VIII. EDUCATION				
Superintendent of schools	$78,853	----	----	$78,853
Board of education	1,955	----	----	1,955
County library	399,800	----	----	399,800
County library—school department	35,520	----	$30,000	5,520
Total education	$516,128	----	$30,000	$486,128
IX. RESERVES				
Accumulative capital outlay	$500,000	----	----	$500,000
Unappropriated reserves	175,000	----	----	175,000
General reserve	400,000	----	----	400,000
Total Reserves	$1,075,000	----	----	$1,075,000
GRAND TOTAL	$23,969,230	$376,988	$225,560	$23,366,682

NOTE: [a] Item transferred from miscellaneous to general government category.
SOURCE: "Budget for the Fiscal Year Ending June 30, 1952," Kern County.

EXHIBIT 1

KERN COUNTY

EXEMPTION OF CITY OF BAKERSFIELD FROM KERN COUNTY TAX LEVY FOR STRUCTURAL FIRE PROTECTION

Section 25643 of the Government Code contains the authority under which the Kern County Board of Supervisors acted to exempt property in the City of Bakersfield from the county tax levy for structural fire protection. This section was added by Chapter 1481, Statutes of 1949, and is reproduced below.

> "25643. The board of supervisors in any county which provides county funds for structural fire protection of areas in the county in incorporated or unincorporated territory shall have the power and discretion at the time of levying county taxes for support of said function, to except from the levy of any tax for said purpose all property within the limits of an incorporated city in said county, upon application by the city and after hearing by the board of supervisors thereon, for which hearing two weeks prior notice shall be given by posting of notice thereof in three public places in said county and in addition said notice shall be published in a newspaper of general circulation in said county once each week for two weeks immediately prior to said hearing. In the exercise of said power the board of supervisors shall consider the extent and quality of fire protection given by the city within its limits and by the county in the suburban area of said city, what benefit in fire protection, if any, is received by the city from the structural fire protection given by the county to surrounding unincorporated areas and all other surrounding circumstances appearing relevant to the subject by said board.
>
> "This section shall not be construed as a grant of power to any county to expend county funds for structural fire protection."

TABLE 2

KERN COUNTY

REPORT ON DEPARTMENTAL BUDGETS, REVENUES, TAXES AND BENEFITS TO CITIES AND UNINCORPORATED AREAS—1951-52

Department	1951-52 budget[a]	Surplus 7/1/51[b]	Revenue other than current tax[c]	Current taxes[d]	Amount paid by cities[e]	Amount paid by unincorporated[f]	Benefits[g]		Cities	
							City	Unincorporated	Benefits more than paid	Benefits less than paid
GENERAL GOVERNMENT										
Board of supervisors	$144,670.00	$11,894.00	$4,263.00 35,000.00	$93,513.00	$11,670.00	$81,843.00	$35,878.00	$108,792.00	$24,208.00	0
Personnel department	52,542.00	4,325.00	1,550.00	46,667.00	5,824.00	40,843.00	13,030.00	39,512.00	7,206 00	0
County clerk	115,204.00	9,422.00	3,377.00 29,000.00	73,405 00	9,161.00	64,244.00	28,571.00	86,633.00	19,410.00	0
Auditor	130,973.00	10,813.00	3,876.00 30.00	116,254.00	14,508 00	101,746.00	32,481.00	98,492.00	17,973.00	0
Treasurer	43,749.00	3,553.00	1,273.00 3,000.00	35,923.00	4,483.00	31,440.00	10,850.00	32,899.00	6,367.00	0
Assessor	240,765.00	19,772.00	7,087.00	213,906.00	26,695.00	187,211.00	59,710.00	181,055.00	33,015.00	0
Tax and license collector	86,730.00	1,680.00	85,050.00	0	0	0	21,509.00	65,221.00	21,509.00	0
District attorney	139,365.00	11,431.00	4,097.00	123,837.00	15,455.00	108,382.00	34,563.00	104,802.00	19,108.00	0
Coroner and public administrator	33,765.00	2,780.00	997.00 3,000.00	26,988.00	3,368.00	23,620.00	8,374.00	25,391.00	5,006.00	0
Surveyor	74,148.00	6,179.00	2,215.00	65,754.00	8,206.00	57,548.00	0	74,148.00	0	$8,206.00
Planning commission	37,438.00	3,089.00	1,107.00	33,242.00	4,149.00	29,093.00	0	37,438.00	0	4,149.00
Purchasing agent	43,634.00	3,553.00	1,273.00	38,808.00	4,843.00	33,965.00	10,821.00	32,813.00	5,978.00	0
County garage	169,757.00	108,463.00	61,294.00	0	0	0	42,100.00	127,657.00	42,100.00	0
County employees retirement	2,030.00	154.00	55.00	1,821.00	227.00	1,594.00	503.00	1,527.00	276.00	0
County counsel	30,093.00	2,471.00	886.00	26,736.00	3,337.00	23,399.00	7,463.00	22,630.00	4,126.00	0
Elections (county clerk)	91,560.00	7,569.00	2,713.00	81,278.00	10,143.00	71,135.00	22,707.00	68,853.00	12,564.00	0
Elections (supervisors)	50,000.00	4,171.00	1,495.00	44,334.00	5,533.00	38,801.00	12,400.00	37,600.00	6,867.00	0
Superior court	95,510.00	7,878.00	2,824.00	84,808.00	10,584.00	74,224.00	23,686.00	71,824.00	13,102.00	0
Justice courts	152,805.00	0	100,805.00 40,000.00 12,000.00	0	0	0	37,896.00	114,909.00	37,896.00	0
Grand jury	4,000.00	309.00	111.00	3,580.00	447.00	3,133.00	992.00	3,008.00	545.00	0
Law library	11,960.00	7,140.00	4,820.00	0	0	0	2,966.00	8,994.00	2,966.00	0
Miscellaneous buildings and grounds	280,465.00	23,016.00	8,250.00 30,000.00	219,199.00	27,356.00	191,843.00	69,555.00	210,910.00	42,199.00	0
Total general government	$2,031,163.00	$249,662.00	$451,448.00	$1,330,053.00	$165,989.00	$1,164,064.00	$476,055.00	$1,555,108.00	$322,421.00	$12,355.00
PROTECTION TO PERSONS AND PROPERTY										
Sheriff	$540,215.00	$44,486.00	$15,946.00 2,000.00	$477,783.00	$59,627.00	$418,156.00	$54,022.00	$486,193.00	0	$5,605.00
Constables	53,950.00	4,480.00	1,606.00	47,864.00	5,973.00	41,891.00	13,380.00	40,570.00	$7,407.00	0
County jail	119,407.00	9,886.00	3,544.00 4,000.00	101,977.00	12,727.00	89,250.00	65,674.00	53,733.00	52,947.00	0
Industrial road camp	271,525.00	22,398.00	8,028.00	241,099.00	30,089.00	211,010.00	115,154.00	156,371.00	85,065.00	0
Industrial farm	328,355.00	275,267.00	53,088.00	0	0	0	139,255.00	189,100.00	139,255.00	0
Recorder	83,020.00	0	83,020.00	0	0	0	20,589.00	62,431.00	20,589.00	0
Sealer of weights and measures	40,128.00	3,244.00	1,163.00	35,721.00	4,458.00	31,263.00	9,952.00	30,176.00	5,494.00	0
Kern County wildlife	6,620.00	618.00	221.00	5,781.00	721.00	5,060.00	1,642.00	4,978.00	921.00	0
Agricultural commissioner	163,054.00	13,439.00	4,817.00	144,798.00	18,071.00	126,727.00	40,437.00	122,617.00	22,366.00	0
Agricultural extension service	48,493.00	4,016.00	1,440.00	43,037.00	5,371.00	37,666.00	12,026.00	36,467.00	6,655.00	0
Livestock and milk inspector	3,235.00	309.00	111.00	2,815.00	351.00	2,464.00	802.00	2,433.00	451.00	0
Kern county fire department	1,228,116.00	101,021.00	36,210.00 170,000.00	920,885.00	28,547.00	892,338.00	141,479.00	1,086,637.00	112,932.00	0
Insurance	149,000.00	12,203.00	4,374.00 5,000.00	127,423.00	15,902.00	111,521 00	36,952.00	112,048.00	21,050.00	0
Kern county disaster council	20,659.00	1,699.00	609.00	18,351.00	2,290.00	16,061.00	5,123.00	15,536.00	2,833.00	0
Radio communications	85,322.00	6,951.00	2,492.00 1,560.00	74,319.00	9,275.00	65,044.00	21,160.00	64,162.00	11,885.00	0
Total protection to persons and property	$3,141,099.00	$500,017.00	$399,229.00	$2,241,853.00	$193,402.00	$2,048,451.00	$677,647.00	$2,463,452.00	$489,850.00	$5,605.00
HEALTH AND SANITATION										
Health department	$589,558.00	$48,503.00	$17,385.00 75,000.00	$448,670.00	$55,994.00	$392,676.00	$146,210.00	$443,348.00	$90,216.00	0
Stony brook retreat	502,345.00	41,397.00	14,838.00 151,500.00	294,610.00	36,767.00	257,843.00	172,304.00	330,041.00	135,537.00	0
Total health and sanitation	$1,091,903.00	$89,900.00	$258,723.00	$743,280.00	$92,761.00	$650,519.00	$318,514.00	$773,389.00	$225,753.00	
ROADS AND BRIDGES										
Highways and bridges	$2,418,680.00	$23,518.00 189,782.00	$1,500.00 1,200,000.00 573.00 124,195.00	$879,112.00	0	$879,112.00	0	$2,418,680.00	0	0
Total roads and bridges	$2,418,680.00	$213,300.00	$1,326,268.00	$879,112.00	0	$879,112.00	0	$2,418,680.00	0	0

TABLE 2—Continued
KERN COUNTY
REPORT ON DEPARTMENTAL BUDGETS, REVENUES, TAXES AND BENEFITS TO CITIES AND UNINCORPORATED AREAS—1951-52

Department	1951-52 budget[a]	Surplus 7/1/51[b]	Revenue other than current tax[c]	Current taxes[d]	Amount paid by cities[e]	Amount paid by unincorporated[f]	Benefits[g]		Cities	
							City	Unincorporated	Benefits more than paid	Benefits less than paid
RECREATION										
Parks and recreational areas	$427,817.00	$35,218.00	$12,624.00 12,000.00	$367,975.00	$45,923.00	$322,052.00	$106,099.00	$321,718.00	$60,176.00	0
Veterans' memorial buildings	16,845.00	1,390.00	498.00	14,957.00	1,867.00	13,090.00	4,178.00	12,667.00	2,311.00	0
Recreational-cultural comm.	150,040.00	12,357.00	4,429.00	133,254.00	16,630.00	116,624.00	37,210.00	112,830.00	20,580.00	0
Kern county museum	34,385.00	2,780.00	997.00	30,608.00	3,820.00	26,788.00	8,527.00	25,858.00	4,707.00	0
Total recreation	$629,087.00	$51,745.00	$30,548.00	$546,794.00	$68,240.00	$478,554.00	$156,014.00	$473,073.00	$87,774.00	0
CHARITIES, CORRECTIONS										
Hospital	$2,938,245.00	$241,740.00	$86,650.00 55,000.00 42,000.00	$2,512,855.00	$313,604.00	$2,199,251.00	$1,477,937.00	$1,460,308.00	$1,164,333.00	0
Welfare administration	606,035.00	49,893.00	17,884.00 146,500.00	391,758 00	48,891.00	342,867.00	206,052.00	399,983.00	157,161.00	0
Aid to needy children	3,250,000.00	272,961.00	18,000.00 2,581,000.00 199,220.00	178,819.00	22,317.00	156,502.00	1,183,000.00	2,067,000.00	1,160,683.00	0
Aid to needy blind	237,000.00	19,463.00	19,122.00 198,415.00	0	0	0	96,696.00	140,304.00	96,696.00	0
Aid to needy aged	3,830,000.00	315,267.00	81.00 3,514,652.00	0	0	0	1,206,450.00	2,623,550.00	1,206,450.00	0
General relief	260,000.00	21,471.00	7,696.00	230,833.00	28,808.00	202,025.00	125,580.00	134,420.00	96,772.00	0
Welfare buildings and grounds	7,255.00	618.00	221.00	6,416.00	801.00	5,615.00	1,799.00	5,456.00	998.00	0
Probation department	158,279.00	12,975.00	4,651.00	140,653.00	17,553.00	123,100.00	77,715.00	80,564.00	60,162.00	0
Juvenile home	132,578.00	10,967.00	3,931.00 2,000.00	115,680.00	14,437.00	101,243.00	74,907.00	57,671.00	60,470.00	0
Juvenile forestry camp	110,720.00	9,114.00	3,267.00 50,000.00	48,339.00	6,033.00	42,306.00	62,557.00	48,163.00	56,524.00	0
State homes and institutions	55,000.00	4,480.00	1,606.00 2,000.00	46,914.00	5,855.00	41,059.00	13,640.00	41,360.00	7,785.00	0
Burial of indigents	8,570.00	772.00	277.00	7,521.00	939.00	6,582.00	2,125.00	6,445.00	1,186.00	0
Veterans' service officer	43,723.00	3,553.00	1,273.00 5,000.00	33,897.00	4,230.00	29,667.00	10,843.00	32,880.00	6,613.00	0
Total charities-corrections	$11,637,405.00	$963,274.00	$6,960,446.00	$3,713,685.00	$463,468.00	$3,250,217.00	$4,539,301.00	$7,098,104.00	$4,075,833.00	0
MISCELLANEOUS										
Building department	$100,470.00	$8,341.00	$2,990.00	$89,139.00	$11,125.00	$78,014.00	0	$100,470.00	0	$11,125.00
Duplicating department	36,910.00	3,089.00	1,107.00	32,714.00	4,083.00	28,631.00	$9,154.00	27,756.00	$5,071.00	0
Airports	132,588.00	10,967.00	3,931.00	117,690.00	14,688.00	103,002.00	32,882.00	99,706.00	18,194.00	0
Public works	508,827.00	41,860.00	15,005.00	451,962.00	56,405.00	395,557.00	126,189.00	382,638.00	69,784.00	0
Chamber of commerce	70,770.00	13,850.00	76.00	56,844.00	7,094.00	49,750.00	17,551.00	53,219.00	10,457.00	0
Fairgrounds and buildings	72,614.00	6,024.00	2,159.00	64,431.00	8,041.00	56,390.00	18,008.00	54,606.00	9,967.00	0
Co. retirement advance reserve	425,000.00	0	601.00	424,399.00	52,965.00	371,434.00	105,400.00	319,600.00	52,435.00	0
Accumulative capital outlay	500,000.00	299,799.00	201.00	200,000.00	24,960.00	175,040.00	124,000.00	376,000.00	99,040.00	0
Lerdo buildings and grounds	48,995.00	4,016.00	1,440.00	43,539.00	5,434.00	38,105.00	12,151.00	36,844.00	6,717.00	0
Experimental farm	32,591.00	32,591.00	0	0	0	0	8,083.00	24,508.00	8,083.00	0
Total miscellaneous	$1,928,765.00	$420,537.00	$27,510.00	$1,480,718.00	$184,795.00	$1,295,923.00	$453,418.00	$1,475,347.00	$279,748.00	$11,125.00
EDUCATION										
Superintendent of schools	$78,853.00	$6,488.00	$2,325.00	$70,040.00	$8,741.00	$61,299.00	$19,556.00	$59,297.00	$10,815.00	0
Board of education	1,955.00	154.00	55.00	1,746.00	218.00	1,528.00	485.00	1,470.00	267.00	0
County library	399,800.00	19,670.00	305.00 7,000.00	372,825.00	46,529.00	326,296.00	99,150.00	300,650.00	52,621.00	0
County library—school dept.	35,520.00	5,520.00	30,000.00	0	0	0	8,809.00	26,711.00	8,809.00	0
Total education	$516,128.00	$31,832.00	$39,685.00	$444,611.00	$55,488.00	$389,123.00	$128,000.00	$388,128.00	$72,512.00	0
INTEREST, DEBT REDEMPTION										
Unappropriated reserve	$175,000.00	0	$502.00	$174,498.00	$21,777.00	$152,721.00	$43,400.00	$131,600.00	$21,623.00	0
General reserve	400,000.00	308,058.00	0	91,942.00	11,474.00	80,468.00	99,200.00	300,800.00	87,726.00	0
Total interest and debt redemption	$575,000.00	$308,058.00	$502.00	$266,440.00	$33,251.00	$233,189.00	$142,600.00	$432,400.00	$109,349.00	0
GRAND TOTAL	$23,969,230.00	$2,828,325.00	$9,494,359.00	$11,646,546.00	$1,257,394.00	$10,389,152.00	$6,891,549.00	$17,077,681.00	$5,663,240.00	$29,085.00

NOTES:

[a] Budget figures are actual amounts.

[b] Surplus figures are actual amounts for those departments having special funds, others in percentage of total budget.

[c] Revenue figures are actual amounts for those departments having specific income, others in percentage of total budgets.

[d] Current taxes are actual amounts for departments having their own funds, others in percentage of total budgets.

[e] Amount paid by cities, by actual assessed valuation of those areas, except roads, to which cities do not contribute, and structural fire, for which the City of Bakersfield is exempt.

[f] Amount paid by unincorporated is actual amount assessed and paid by unincorporated areas.

[g] Benefits in general are apportioned according to population except in those cases where no benefits are derived or where they are of a different proportion, such as the following:

Surveyor and planning commission—no benefits to the cities;
Sheriff—10 percent benefits to cities; 90 percent to others;
Jail—55 percent to cities (by population of jail); 45 percent to others;
Industrial farm and road camp—57.6 percent to cities; 42.4 percent to others (by population of these);
Stony Brook—34.3 percent to cities; 65.7 percent to others (by population of cases);
Hospital—50.3 percent to cities; 49.7 percent to others (by patient load);
Aid to needy children—36.4 percent to cities; 63.6 percent to others (by case load);
Aid to needy blind—40.8 percent to cities; 59.2 percent to others (by case load);
Aid to needy aged—31.5 percent to cities; 68.5 percent to others (by case load);
General relief—48.3 percent to cities; 51.7 percent to others (by case load);
Probation—49.1 percent to cities; 50.9 percent to others (by case load);
Juvenile home—56.5 percent to cities; 43.5 percent to others (by population of the home);
Forestry camp—41.3 percent to cities; 58.7 percent to others (by population of camp).

SOURCE: Compiled by Kern County Administrative Officer.

APPENDIX D

TABLE 1

ALAMEDA COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES, AND NET OUTLAYS
1951-52

		Associated revenues		
County function	*Budgeted expenditure*	*Fees and charges paid by individuals*	*Intergovernmental charges*	*Net outlay*
I. GENERAL GOVERNMENT				
Board of supervisors	$534,964	----	----	$534,964
Tabulating division	57,795	----	----	57,795
County clerk	380,383	$200,000	----	180,383
Auditor	161,155	150	----	161,005
Old court house	10,000	----	----	10,000
Civil service commission	66,867	----	----	66,867
Treasurer	89,880	25,000	----	64,880
Assessor	392,711	1,000	----	391,711
Tax and license collector	183,297	----	$60,000	123,297
District attorney	564,495	25,000	----	539,495
Coroner	101,798	----	----	101,798
Public administrator	21,375	25,000	----	Cr. (3,625)
Surveyor and assessment block books	53,100	6,000	----	47,100
Planning commission	56,602	1,000	----	55,602
Purchasing agent and county store	130,114	----	----	130,114
General county garage	202,068	----	----	202,068
Public defender	44,717	----	----	44,717
Primary elections	327,121	----	----	327,121
Special elections	870	----	----	870
Registration	25,343	----	----	25,343
Superior courts	354,550	----	----	354,550
Justice and municipal courts	430,068	60,000	92,000	278,068
Trial juries, interpreters, witnesses	25,000	----	----	25,000
Grand jury	15,500	----	----	15,500
Building inspection	89,813	100,000	----	Cr. (10,187)
Courthouse and hall of records and grounds	356,389	----	----	356,389
Justice court and county garage building	10,823	----	----	10,823
Employees' retirement system	445,534	----	----	445,534
Alameda County Employees Retirement Association	20,701	----	----	20,701
Miscellaneous	433,900	10,000	----	423,900
Total General Government	$5,586,933	$453,150	$152,000	$4,981,783
II. PROTECTION TO PERSONS AND PROPERTY				
Sheriff	$801,538	$21,000	$2,500	$778,038
Peace officers' disability system	5,000	----	----	5,000
Constables	61,922	21,000	----	40,922
County jail	99,240	----	----	99,240
Santa Rita jail and prison farm	620,571	40,000	72,000	508,571
Outside jails	300	----	----	300
Recorder	188,065	360,000	----	Cr. (171,935)
Sealer of weights and measures	102,900	1,500	----	101,400
Humane service	9,600	----	----	9,600
Agricultural commissioner	101,605	660	----	100,945
Farm advisor, agricultural extension service	31,155	----	----	31,155
Live stock inspector	5,375	----	----	5,375
Predatory animal control	4,140	----	----	4,140
Fish and game warden	9,044	----	----	9,044
Fire protection, forestry fire control	55,390	----	----	55,390
Compensation insurance	37,000	40,000	----	Cr. (3,000)
Fire and burglary insurance	5,150	----	----	5,150
Public liability insurance	7,000	----	----	7,000
Total Protection to Persons and Property	$2,144,995	$484,160	$74,500	$1,586,335
III. HEALTH AND SANITATION				
Vital statistics	$1,000	----	----	$1,000
Health Department	360,303	$2,000	$42,700	315,603
Total Health and Sanitation	$361,303	$2,000	$42,700	$316,603

TABLE 1—Continued

ALAMEDA COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES, AND NET OUTLAYS
1951-52

		Associated revenues		
County function	*Budgeted expenditure*	*Fees and charges paid by individuals*	*Intergovernmental charges*	*Net outlay*
IV. ROADS AND BRIDGES				
Administration and engineering	$351,500	----	----	$351,500
Employees' Retirement System	92,832	----	----	92,832
Primary roads and bridges construction	1,363,270	----	----	1,363,270
Primary roads and bridges maintenance	235,500	----	----	235,500
Secondary roads and bridges construction	923,190	----	----	923,190
Secondary roads and bridges maintenance	700,480	----	----	700,480
Acquisition	83,000	----	----	83,000
Contributions for road or street purposes	450,000	----	----	450,000
Total Roads and Bridges	$4,199,772	----	----	$4,199,772
V. RECREATION				
Veterans memorial buildings	$567,096	$20,000	----	$547,096
VI. CHARITIES AND CORRECTIONS				
General administration—salaries and wages for all institutions	$3,945,053	$243,400	----	$3,701,653
Employees' Retirement System	463,374	----	----	463,374
Welfare commission	1,345,334	----	----	1,345,334
Welfare building	25,528	----	----	25,528
Aid to needy children	4,527,974	----	----	4,527,974
Aid to needy blind	633,654	----	----	633,654
Aid to needy aged	12,280,656	30,000	----	12,250,656
General relief	1,376,264	----	----	1,376,264
Clinics and miscellaneous	142,909	----	----	142,909
Hospitals	1,586,443	----	----	1,586,443
Probation department	705,587	----	----	705,587
Detention home	422,560	----	----	422,560
Care of juvenile court wards	300,000	55,000	----	245,000
Hospitals for insane, narcotics	5,500	----	----	5,500
Examination and care of insane	500	----	----	500
Burial of indigents	150	----	----	150
State institutions aid	215,000	50,000	----	165,000
Alameda County boys' camp	166,201	----	----	166,201
Emergency hospital	18,100	----	----	18,100
Physically defective or handicapped children's fund	92,893	----	----	92,893
Total Charities and Corrections	$28,253,680	$378,400	----	$27,875,280
VII. EDUCATION				
Superintendent of schools	$143,149	----	----	$143,149
Board of education	9,950	----	----	9,950
County library	139,639	----	----	139,639
Total Education	$292,738	----	----	$292,738
VIII. INTEREST AND DEBT REDEMPTION				
Interest on county bonds	$37,500	----	----	$37,500
Principal payments on county bonds	262,000	----	----	262,000
Total Interest and Debt Redemption	$299,500	----	----	$299,500
IX. COUNTY CONSTRUCTION				
Hospital buildings and grounds	$1,625,158	----	----	$1,625,158
County land and buildings	1,662,543	$20,000	----	1,642,543
Total County Construction	$3,287,701	$20,000	----	$3,267,701
X. PROVISION FOR CONTINGENCIES				
Unappropriated reserves	$1,310,687	----	----	$1,310,687
XI. PROVISION FOR FINANCING BEYOND THE BUDGET YEAR				
General reserve	$1,181,913	----	----	$1,181,913
Grand Total	$47,486,318	$1,357,710	$269,200	$45,859,408

SOURCE: "Preliminary Budget and Financial Report" for the Fiscal Year 1951-1952, Alameda County.

TABLE 2

ALAMEDA COUNTY
EXPENDITURES FROM TAX LEVY SEGREGATED AS TO BENEFIT RECEIVED
FISCAL YEAR ENDING JUNE 30, 1951

General function and unit	Total amount expended from property tax	Outside county	Amount spent[a]		Service to special districts	Percentage	
			Incorporated area	Unincorporated area		Incorporated area	Unincorporated area
GENERAL GOVERNMENT							
Board of supervisors	$174,530.70	----	$150,654.90	$23,875.80	----	----	13.68
Tabulating division	49,211.64	----	42,479.49	6,732.15	----	----	13.68
County clerk	138,162.90	----	119,262.22	18,900.68	----	86.32	13.68
Auditor	132,993.02	----	114,799.57	18,193.45	----	86.32	13.68
Civil service	49,742.43	----	42,937.67	6,804.76	----	86.32	13.68
Treasurer	52,516.92	----	45,332.61	7,184.31	----	86.32	13.68
Assessor	324,949.26	----	280,496.20	44,453.06	----	86.32	13.68
Tax collector	161,937.30	----	139,784.28	22,153.02	----	86.32	13.68
District attorney	428,607.35	----	340,460.53	50,406.82	$37,740.00	79.43	11.77[b]
Coroner	86,973.07	----	82,846.87	4,126.20	----	95.30	4.70[c]
Public administrator	—578.37	----	—499.24	—79.13	----	86.32	13.68
Surveyor	2,108.21	----	1,819.80	288.41	----	86.32	13.68
Planning commission	37,776.58	----	----	37,776.58	----	----	100.00[d]
Purchasing agent	113,327.79	----	97,824.55	15,503.24	----	86.32	13.68
Garage	10,166.57	----	8,775.78	1,390.79	----	86.32	13.68
Public defender	30,326.77	$994.71	28,904.44	427.62	----	89.54	1.46[e]
Elections	163,527.85	----	147,175.07	16,352.78	----	90.00	10.00[f]
Superior courts	219,835.40	----	189,761.92	30,073.48	----	86.32	13.68
Justice and municipal courts	34,298.46	----	29,606.43	4,692.03	----	86.32	13.68
Grand jury	8,241.55	----	7,114.11	1,127.44	----	86.32	13.68
Building inspector	—68,169.87	----	----	—68,169.87	----	----	100.00[g]
Public buildings	241,830.31	----	208,747.92	33,082.39	----	86.32	13.68
Total General Government	$2,392,315.84	$994.71	$2,078,285.12	$275,296.01	$37,740.00		
PROTECTION TO PERSONS AND PROPERTY							
Sheriff	$534,849.47	----	$266,803.44	$268,046.03	----	49.88	50.12[h]
Constables	38,317.80	----	33,075.92	5,241.88	----	86.32	13.68
County jails	73,980.29	----	61,403.64	12,576.65	----	83.00	17.00[i]
Santa Rita jail and prison farm	488,851.83	----	400,858.50	87,993.33	----	82.00	18.00[i]
Recorder	—204,231.69	----	—176,292.79	—27,938.90	----	86.32	13.68
Sealer of weights and measures	82,175.57	----	70,933.95	11,241.62	----	86.32	13.68
Humane service	955.00	----	----	955.00	----	----	100.00[j]
Agricultural commissioner	88,493.92	----	76,387.95	12,105.97	----	86.32	13.68
Farm advisors—Agricultural Extension Service	25,540.87	----	----	25,540.87	----	----	100.00[k]
Livestock inspector	4,853.66	----	663.98	4,189.68	----	86.32	13.68
Predatory animal control	3,900.00	----	----	3,900.00	----	----	100.00[k]
Fish and game warden	7,584.48	----	6,546.92	1,037.56	----	86.32	13.68
Fire protection	42,109.64	----	----	42,109.64	----	----	100.00[k]
Flood control	----	----	----	----	----	----	----
Total Protection to Persons and Property	$1,187,380.84	----	$740,381.51	$446,999.33	----	62.35	37.65
HEALTH AND SANITATION							
Health department	$218,100.62	----	$61,299.60	$156,801.02	----	28.11	71.89[l]
RECREATION							
Veterans' memorial buildings	$25,908.61	----	$22,364.31	$3,544.30	----	86.32	13.68
CHARITIES AND CORRECTIONS							
Welfare department—all other relief	$2,593,344.76	----	$2,393,657.22	$199,687.54	----	92.30	7.7 [l]
General relief	1,517,273.82	----	1,447,479.22	69,794.60	----	95.40	4.6 [l]
Hospitals and clinics	4,088,083.78	$130,957.93	3,688,245.80	268,880.05	----	90.22	6.58[l]
Probation department	537,247.90	----	467,405.67	69,842.23	----	87.00	13.00[l]
Juvenile hall	242,483.29	----	227,449.33	15,033.96	----	93.80	6.20[l]
Boys' camp	71,526.19	----	70,667.86	858.33	----	98.80	1.20[l]
Maintaining dependent minors	339,432.85	----	292,998.44	46,434.41	----	86.32	13.68
State institutions aid	206,178.51	----	177,973.29	28,205.22	----	86.32	13.68
Total Charities and Corrections	$9,595,571.10	$130,957.93	$8,765,876.83	$698,736.34	----		

TABLE 2—Continued

ALAMEDA COUNTY
EXPENDITURES FROM TAX LEVY SEGREGATED AS TO BENEFIT RECEIVED
FISCAL YEAR ENDING JUNE 30, 1951

			Amount spent[a]			*Percentage*	
General function and unit	*Total amount expended from property tax*	*Outside county*	*Incorporated area*	*Unincorporated area*	*Service to special districts*	*Incorporated area*	*Unincorporated area*
MISCELLANEOUS							
Fair	$48,734.41	----	$42,067.54	$6,666.87	----	86.32	13.68
Development commission, advertising	175,233.03	----	151,261.15	23,971.88	----	86.32	13.68
Employment retirement and county share	926,050.49	----	799,366.78	126,683.71	----	86.32	13.68
Vacation pay, seasonal employees	6,040.79	----	5,214.41	826.38	----	86.32	13.68
Total Miscellaneous	$1,156,058.72	----	$997,909.88	$158,148.84	----		
EDUCATION							
Superintendent of schools	$113,130.88	----	----	----	$113,130.88	----	----
Board of education	6,691.75	----	----	----	6,691.75	----	----
County library	130,327.39	----	$43,286.26	$87,041.13	----	33.20	66.80[m]
Total Education	$250,150.02	----	$43,286.26	$87,041.13	$119,822.63		
GRAND TOTAL	$14,825,485.75	$131,952.64	$12,709,403.51	$1,826,566.97	$157,562.63		
RECAPITULATION							
General government	$2,392,315.84	$994.71	$2,078,285.12	$275,296.01	$37,740.00	86.89	11.49
Protection to persons and property	1,187,380.84	----	740,381.51	446,999.33	----	62.35	37.65
Health and sanitation	218,100.62	----	61,299.60	156,801.02	----	28.11	71.89
Recreation	25,908.61	----	22,364.31	3,544.30	----	86.32	13.68
Charities and corrections	9,595,571.10	130,957.93	8,765,876.83	698,736.34	----	91.35	7.29
Miscellaneous	1,156,058.72	----	997,909.88	158,148.84	----	86.32	13.68
Education	250,150.02	----	43,286.26	87,041.13	119,822.63	17.30	34.80
GRAND TOTAL	$14,825,485.75	$131,952.64	$12,709,403.51	$1,826,566.97	$157,562.63		
Percentage		0.90	85.72	12.32	1.06	85.72	12.32

NOTES:

[a] All expenditures distributed on the basis of assessed valuation and population inside and outside cities (for Alameda County, both have the same ratio).

[b] Prorated according to court assignments, except that civil matters and the district attorney's salary were apportioned on the basis of assessed valuation.

[c] Prorated according to location of cases handled during the calendar year 1950.

[d] The activities of the planning commission were judged to benefit only the unincorporated areas.

[e] Distributed according to location of crime charged for 213 cases arising during the period September 1, 1951, through November 30, 1951.

[f] Expenditures on elections distributed according to the number of registered voters.

[g] Building inspector activities judged to benefit only the unincorporated areas. This distribution overlooks the fact that inspections are paid for on a fee basis, and should therefore not enter into the exhibit.

[h] Expenditures for substations distributed wholly to unincorporated areas; expenditures on civil, communications, and narcotics (etc.) details distributed on the basis of population.

[i] Distributed on the basis of location of crime committed by the prisoner.

[j] Humane service judged to benefit only the unincorporated areas.

[k] Judged to benefit only the unincorporated areas.

[l] Distributed according to location of cases.

[m] Distributed according to location of county branch libraries and the estimates made by branch librarians.

SOURCE: Administrative Office of Alameda County.

APPENDIX E

TABLE 1

LOS ANGELES COUNTY
ASSESSED VALUATIONS OF INCORPORATED CITIES
1951

Cities	*Assessed valuation 1951*	*Percentage of total county assessed value*
Alhambra	$74,066,100	1.28
Arcadia	42,433,340	0.73
Avalon	3,896,880	0.07
Azusa	11,375,010	0.20
Bell	11,579,880	0.20
Beverly Hills	121,120,710	2.09
Burbank	125,951,100	2.18
Claremont	6,752,540	0.12
Compton	43,068,080	0.74
Covina	5,742,870	0.10
Culver City	43,164,100	0.75
El Monte	12,828,190	0.22
El Segundo	39,531,980	0.68
Gardena	10,247,100	0.18
Glendale	133,677,035	2.31
Glendora	3,811,420	0.06
Hawthorne	13,079,430	0.23
Hermosa Beach	10,839,450	0.19
Huntington Park	49,086,980	0.85
Inglewood	59,306,400	1.02
La Verne	2,931,000	0.05
Long Beach	341,888,475	5.91
Los Angeles	2,652,090,910	45.82
Lynwood	22,641,190	0.39
Manhattan Beach	$14,632,260	0.25
Maywood	9,573,430	0.16
Monrovia	23,836,300	0.41
Montebello	29,875,140	0.52
Monterey Park	18,426,770	0.32
Palos Verdes Estates	5,393,150	0.09
Pasadena	157,408,340	2.72
Pomona	42,134,090	0.73
Redondo Beach	32,069,800	0.55
San Fernando	12,636,480	0.22
San Gabriel	24,080,060	0.42
San Marino	31,902,770	0.55
Santa Monica	109,125,100	1.88
Sierra Madre	7,220,390	0.12
Signal Hill	29,813,580	0.52
South Gate	53,389,550	0.92
South Pasadena	21,449,460	0.37
Torrance	54,734,290	0.94
Vernon	153,256,110	2.65
West Covina	7,230,420	0.12
Whittier	29,830,830	0.52
Total	$4,709,128,490	81.35

SOURCE: "Taxpayers' Guide, 1951," Los Angeles County.

TABLE 2

LOS ANGELES COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES, AND NET OUTLAYS
1951-52

County function	*Budgeted expenditure*	*Associated revenues*		*Net outlay*
		Fees and charges paid by individuals, and refunds	*Intergovernmental charges*	
I. GENERAL GOVERNMENT				
Board of supervisors	$832,904	----	----	$832,904
Rent and taxes	20,548	----	----	20,548
Auditor	1,570,699	----	----	1,570,699
Treasurer	285,168	----	----	285,168
Assessor	3,893,971			
Tax collector	1,064,305	----	$100,000	4,858,276
Purchasing and stores	612,758	----	----	612,758
Bindery and multigraph	995	----	----	995
District attorney	1,194,249	----	----	1,194,249
County counsel	385,228	----	----	385,228
Public defender	169,452	----	----	169,452
Civil service commission	571,723	----	42,573	529,150
Surveyor	1,759,373	----	221,013	1,538,360
Blueprint service	8,362	----	21,000	Cr. (12,638)
County engineer	970,994	$146,670	329,850	494,474
Regional planning commission	399,068	11,250	3,600	384,218
Building and Safety	1,037,628	1,350,000	----	Cr. (312,372)
Registrar of voters	1,406,448	----	----	1,406,448
Election expense—supervisors	564,041	----	----	564,041
Municipal courts and marshals	3,943,841	266,628	----	3,677,213
Justice courts	454,680	----	----	454,680
Superior court	2,450,470	----	----	2,450,470
Grand jury	54,500	----	----	54,500
County clerk	1,343,963	1,100,000	----	243,963
Coroner	286,745	----	----	286,745
Mechanical department	1,411,532	----	----	1,411,532

TABLE 2—Continued

LOS ANGELES COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES, AND NET OUTLAYS
1951-52

		Associated revenues		
County function	*Budgeted expenditure*	*Fees and charges paid by individuals, and refunds*	*Intergovernmental charges*	*Net outlay*
Fire apparatus and motor vehicles	$276,343	----	----	$276,343
Aviation department	62,219	$68,392	----	Cr. (6,173)
Janitors	688,987	----	----	688,987
Telephone department [a]	478,837	2,451	----	476,386
Mechanical service [a]	104,000	----	----	104,000
Judgments and damages [a]	35,000	----	----	35,000
Workmen's compensation [a]	531,000	159,250	----	371,750
County employees' retirement fund [a]	4,640,768	----	----	4,640,768
Exploitation and exposition [a]	585,200	----	----	585,200
County fair grounds [a]	1,000,000	----	----	1,000,000
Total general government	$35,095,999	$3,104,641	$718,036	$31,273,322
II. PROTECTION TO PERSONS AND PROPERTY				
Sheriff [b]	$5,960,921	$163,000	----	$5,797,921
Forester and fire warden	1,930,382	107,450	$187,853	1,635,079
Recorder	915,454	1,850,000	----	Cr. (934,546)
Public administrator	221,246	125,000	----	96,246
Sealer of weights and measures	230,025	----	----	230,025
Pound department	148,457	18,450	3,500	126,507
Farm advisor	59,244	----	----	59,244
Agricultural department	517,830	87,884	----	429,946
Live stock department	146,041	----	----	146,041
Peace officers' retirement fund [a]	294,000	----	----	294,000
Foresters', fire wardens' and firemen's retirement fund [a]	55,399	----	----	55,399
Insurance [a]	389,000	15,000	----	374,000
Total protection to persons and property	$10,867,999	$2,366,784	$191,353	$8,309,862
III. HEALTH AND SANITATION				
Health department	$2,783,721	$51,400	$40,000	$2,692,321
Health department—public health fund	409,320	----	----	409,320
Air pollution control district hearing board	41,736	----	----	41,736
Air pollution control district	664,889	----	----	664,889
Total health and sanitation	$3,899,666	$51,400	$40,000	$3,808,266
IV. HIGHWAYS AND BRIDGES				
Motor vehicle fund	$25,271,300	$330,000	----	$24,941,300
Special road fund	998,093	----	----	998,093
Supervisorial road district No. 1 fund	161,248	----	----	161,248
Supervisorial road district No. 2 fund	29,338	----	----	29,338
Supervisorial road district No. 3 fund	11,019	----	----	11,019
Supervisorial road district No. 4 fund	69,651	----	----	69,651
Supervisorial road district No. 5 fund	57,993	----	----	57,993
Total highways and bridges	$26,598,642	$330,000	----	$26,268,642
V. CHARITIES, HOSPITALS AND CORRECTIONS				
Charities—administration	$213,147	----	----	$213,147
Charities—resources and collections	556,123	$2,100	----	554,023
Charities—medical social service	1,258,456	----	----	1,258,456
Charities—hospital	16,391,621	1,414,999	$200,000	14,776,622
Charities—Harbor General Hospital	3,185,824	202,595	----	2,983,229
Charities—Olive View Sanitarium	3,613,012	198,959	----	3,414,053
Charities—Rancho Los Amigos	4,421,406	513,780	----	3,907,626
Charities—Warm Springs	128,745	4,656	----	124,089
Charities—Acton Camp	192,207	1,384	----	190,823
Charities—Long each General Hospital	909,251	28,076	----	881,175
Charities—medical research projects	260,000	----	200,000	60,000
Charities—public assistance	10,263,939	250	----	10,263,689
Charities—adoptions	247,482	----	----	247,482
Physically handicapped children	806,213	----	----	806,213
Aid to needy blind	4,781,900	----	----	4,781,900
Aid to partially self supporting blind	337,891	----	----	337,891
Aid to needy children	29,570,419	----	----	29,570,419
Indigent aid	7,853,166	229,324	----	7,623,842
Old age assistance	98,719,540	----	----	98,719,540
Public welfare commission	231,802	----	----	231,802

TABLE 2—Continued

LOS ANGELES COUNTY
BUDGETED EXPENDITURES, ASSOCIATED REVENUES, AND NET OUTLAYS
1951-52

		Associated revenues		
County function	*Budgeted expenditure*	*Fees and charges paid by individuals, and refunds*	*Intergovernmental charges*	*Net outlay*
State hospitals	$488,440	----	----	$488,440
State reform schools	185,000	----	----	185,000
Mental health—court wards	510,544	----	$10,000	500,544
California School for Deaf and Blind	1,300	----	----	1,300
Alcoholic clinic	10,000	----	----	10,000
Jail	1,576,812	$46,700	50,000	1,480,112
Wayside Honor Rancho	1,096,137	2,000	----	1,094,137
Detention Camps	78,433	----	----	78,433
Wages to prisoners	1,000	----	----	1,000
Juvenile hall	915,293	890	----	914,403
Probation department	2,723,594	800	----	2,722,794
Care of juvenile court wards	840,682	----	85,000	755,682
Biscailuz Center	294,356	1,000	----	293,356
Youth committee	22,335	----	----	22,335
Total charities, hospitals and corrections	$192,686,070	$2,647,513	$545,000	$189,493,557
VI. EDUCATION				
Superintendent of schools	$299,243	$300	----	$298,943
Superintendent of schools—special schools	60,322	----	----	60,322
School library service	80,000	----	$80,000	----
County art institute	72,444	70,230	----	2,214
Public library	1,157,110	----	----	1,157,110
Total education	$1,669,119	$70,530	$80,000	$1,518,589
VII. RECREATION				
County museum	$544,300	$8,850	----	$535,450
Parks and recreation	3,317,760	158,675	----	3,159,085
Total recreation	$3,862,060	$167,525	----	$3,694,535
VIII. MISCELLANEOUS				
Soldier burials	$2,640	----	----	$2,640
Assessments and special district taxes	26,378	----	----	26,378
Statutory payments—bond acts	200	----	----	200
Maintenance of unassigned county equipment	5,500	----	----	5,500
Patriotic hall	60,962	$6,000	----	54,962
Aid to other governments and non-profit organizations	388,078	----	----	388,078
Reimbursement to subdividers	529,150	----	----	529,150
Capital projects	4,955,802	----	----	4,955,802
Estimated delinquency [c]	2,758,300	----	----	2,758,300
Total miscellaneous	$8,727,010	$6,000	----	$8,721,010
IX. INTEREST				
Communicable disease hospital bonds	$50,000	----	----	$50,000
Juvenile Hall Center bonds	35,000	----	----	35,000
Total interest	$85,000	----	----	$85,000
X. RESERVES				
Unappropriated	$93,960	----	----	$93,960
General	5,720,000	----	----	5,720,000
Total reserves	$5,813,960	----	----	$5,813,960
Grand total	$289,305,525	$8,744,393	$1,574,389	$278,986,743

NOTES:

[a] Transferred from miscellaneous.

[b] Transferred from general government.

[c] Transferred from estimated delinquency.

SOURCE: "County Budget Fiscal Year Ending June 30, 1952," Los Angeles County.

TABLE 3

LOS ANGELES COUNTY
NUMBER OF POLICE CLASS EMPLOYEES PER 1,000 POPULATION AND PER SQUARE MILE IN SELECTED SHERIFFS' SUBSTATIONS AS COMPARED WITH ADJACENT CITIES
1951-52

				Police class employees		
				Per 1,000 population		
Station and cities	*Population*	*Number of square miles*	*Number of police*	*Total*	*Traffic officers*	*Per square mile*
ALTADENA STATION	39,180	60.0	24	.61	----	.40
Sierra Madre	7,317	3.0	7	.96	----	Average 5.00
Glendale	95,666	23.9	119	1.24	.22	
Arcadia	23,332	12.0	31	1.33	.13	
Pasadena	104,722	21.9	148	1.41	.29	
Average number of police class employees per 1,000 population in the above cities						1.32
Average number of police class employees per square mile of all cities in the county						7.77
EAST LOS ANGELES STATION	175,469	20.4	77	.42	----	3.80
Montebello	22,176	8.2	26	1.17	.32	Average 9.00
Maywood	13,363	1.5	20	1.50	.30	
Bell	15,344	2.0	25	1.63	.46	
Los Angeles	1,969,264	453.4	4137	2.10	.46	
Vernon	421	5.0	23	54.63	----	
Average number of police class employees per 1,000 population in the above cities						2.09
Average number of police class employees per square mile of all cities in the county						7.77
FIRESTONE STATION	140,884	35.6	76	.54	----	2.13
South Gate	51,233	7.5	46	.90	----	Average 9.23
77th Street Station, Los Angeles Police Department	207,795	20.8	189	.91	----	
Lynwood	25,807	3.6	27	1.05	.27	
Maywood	13,363	1.5	20	1.50	.30	
Huntington Park	29,695	2.9	46	1.55	.84	
Bell	15,344	2.0	25	1.63	.46	
Average number of police class employees per 1,000 population in the above cities						1.03
Average number of police class employees per square mile of all cities within the county						7.77
HOLLYWOOD STATION	51,040	6.0	28	.55	--	4.67
Beverly Hills	28,878	5.0	55	1.90	.69	Average 9.14
Los Angeles	1,969,264	453.4	4137	2.10	.46	
Average number of police class employees per 1,000 population in the above cities						2.10
Average number of police class employees per square mile of all cities within the county						7.77
LENNOX STATION	121,187	55.0	62	.51	----	1.13
Manhattan Beach	18,127	3.8	18	.99	.17	Average 8.60
Redondo Beach	25,406	6.1	26	1.02	.07	
Inglewood	46,280	8.5	51	1.10	.45	
Gardena	14,435	3.2	18	1.25	----	
Torrance	24,608	18.8	31	1.26	.24	
Hermosa Beach	11,914	1.8	17	1.43	.34	
Hawthorne	16,527	2.5	27	1.63	.85	
El Segundo	8,180	6.3	14	1.71	----	
Culver City	19,834	4.3	36	1.82	.55	
Los Angeles	1,969,264	453.4	4137	2.10	.46	
Average number of police class employees per 1,000 population in the above cities						2.03
Average number of police class employees per square mile of all cities within the county						7.77
MONTROSE STATION	30,000	418.0	18	.60	----	.04
Glendale	95,666	23.9	119	1.24	.22	Average 8.83
Pasadena	104,722	21.9	148	1.41	.29	
Los Angeles	1,969,264	453.4	4137	2.10	.46	
Average number of police class employees per 1,000 population in the above cities						2.03
Average number of police class employees per square mile of all cities within the county						7.77

TABLE 3—Continued

LOS ANGELES COUNTY
NUMBER OF POLICE CLASS EMPLOYEES PER 1,000 POPULATION AND PER SQUARE MILE IN SELECTED SHERIFFS' SUBSTATIONS AS COMPARED WITH ADJACENT CITIES
1951-52

				Police class employees		
				Per 1,000 population		
Station and cities	*Population*	*Number of square miles*	*Number of police*	*Total*	*Traffic officers*	*Per square mile*
NORWALK STATION	330,000	145.0	93	.28	----	.64
South Gate	51,233	7.5	46	.90	----	Average 8.30
Compton	48,654	7.5	45	.92	.31	
Lynwood	25,807	3.6	27	1.05	.27	
Whittier	25,450	5.0	30	1.18	.16	
Long Beach	243,395	35.0	316	1.30	.21	
Huntington Park	29,695	2.9	46	1.55	.84	

Average number of police class employees per 1,000 population in the above cities 1.20
Average number of police class employees per square mile of all cities within the county 7.77

Station and cities	*Population*	*Number of square miles*	*Number of police*	*Total*	*Traffic officers*	*Per square mile*
SAN DIMAS STATION	60,357	410.0	33	.55	----	.08
Azusa	11,001	4.0	13	1.18	.18	Average 3.30
Whittier	25,450	5.0	30	1.18	.16	
Claremont	6,427	3.5	8	1.24	----	
Pomona	35,603	13.6	46	1.29	.22	
La Verne	4,271	1.0	7	1.64	----	
West Covina	4,685	9.1	8	1.71	----	
Covina	4,243	1.4	9	2.12	----	
Glendora	4,040	3.0	14	3.47	----	

Average number of police class employees per 1,000 population in the above cities 1.41
Average number of police class employees per square mile of all cities within the county 7.77

Station and cities	*Population*	*Number of square miles*	*Number of police*	*Total*	*Traffic officers*	*Per square mile*
TEMPLE STATION	137,039	65.0	48	.35	----	.74
Azusa	11,001	4.0	13	1.18	.18	Average 5.81
Monrovia	20,377	8.4	25	1.25	.20	
San Gabriel	20,577	3.8	26	1.26	----	
Alhambra	52,000	6.0	67	1.27	.20	
Arcadia	23,332	12.0	31	1.33	.13	
Pasadena	104,722	21.9	148	1.41	.29	
El Monte	8,229	1.5	14	1.70	.12	
San Marino	11,405	3.5	31	2.72	----	

Average number of police class employees per 1,000 population in the above cities 1.41
Average number of police class employees per square mile of all cities within the county 7.77

SOURCE: Los Angeles County Sheriff's Department, July 14, 1952.

TABLE 4

LOS ANGELES COUNTY
NATIONAL BOARD OF FIRE UNDERWRITERS
CLASSIFICATIONS, BY AREAS

	Class
LOS ANGELES COUNTY—UNINCORPORATED (outside fire protection district)	10
INCORPORATED CITIES	
Alhambra	4
Arcadia	5
Avalon	6
Azusa	6
Bell	6
Beverly Hills	3
Burbank	4
Claremont	6
Compton	6
Covina	6
Culver City	5
El Monte	7
El Segundo	6
Gardena	6
Glendale	3
Glendora	6
Hawthorne	7
Hermosa Beach	7
Huntington Park	4
Inglewood	5
La Verne	7
Long Beach	3
Los Angeles	3
Lynwood	6
Manhattan Beach	7
Maywood	7
Monrovia	5
Montebello	6
Monterey Park	6
Palos Verdes Estates	7
Pasadena	3
Pomona	5
Redondo Beach	6
San Fernando	5
San Gabriel	6
San Marino	5
Santa Monica	3
Sierra Madre	6
Signal Hill	7
South Gate	4
South Pasadena	4
Torrance	6
Vernon	6
West Covina (future grading pending)	10
Whittier	5

FIRE PROTECTION DISTRICTS		*Class*
Altadena		6
Consolidated	Angeles Mesa	6
	Artesia	8
	Baldwin Park	5
	Bellflower	6
	Bell Gardens	7
	Belvedere Gardens	6
	Clearwater-Hynes	6
	Downey	5
	Flintridge	5
	Florence-Graham	5
	Howard	5
	LaCanada	7
	LaCrescenta	7
	Lakewood	6
	Lawndale	8
	Lennox	7
	Lomita	7
	Malibu	7
	Norwalk	6
	Pico-Rivera	6
	Puente	7
	Santa Fe Springs	6
	Sherman-West Hollywood	5
	Temple-Rosemead	6
	Walnut Park	5
	Willowbrook	7
East Los Angeles		7
Lancaster		7
Palmdale		8
San Dimas		7
Universal City		7

SOURCE: Los Angeles County Fire Department, from data furnished by Pacific Fire Rating Bureau, August, 1952.

TABLE 5

LOS ANGELES COUNTY

ROAD FUNDS RECEIVED BY LOS ANGELES COUNTY FROM THE STATE OF CALIFORNIA

1950-51 and 1951-52

Apportionments under Streets and Highways Code Provisions (Highway Users Tax Fund):	*1947-48*	*1948-49*	*1949-50*	*1950-51*	*1951-52*
Per Sec. 2110a—Snow removal [a]	----	----	----	----	$11,760.00
Per Sec. 2111a—Engineering and administration	$10,000.00	$20,000.00	$20,000.00	$20,000.00	20,000.00
Per Sec. 2115 and 2116—Construction of primary roads	395,864.53	625,321.92	784,980.18	989,359.51	1,228,410.09
Per all other sections: 2110, 2111 b and c, and 2114	5,399,287.53	12,282,907.94	13,229,477.29	14,122,900.24	15,285,888.12
Total apportionments under Streets and Highways Code	$5,805,152.06	$12,928,229.86	$14,034,457.47	$15,132,259.75	$16,545,458.21
Per Chap. 47—Statute of 1944	----	----	----	----	----
Per Chap. 20—Statute of 1946	----	801,381.49	1,735,181.60	578,088.00	248,585.65
Other [b]	8,225,119.39	----	----	----	----
Total receipts from State of California	$14,030,271.45	$13,729,611.35	$15,769,639.07	$15,710,347.55	$16,794,043.86

NOTES:

[a] Not reported separately prior to 1951-52.

[b] Six months revenue prior to effective date of Collier-Burns Act.

SOURCE: Los Angeles County Road Department.

TABLE 6

LOS ANGELES COUNTY

COUNTY EXPENDITURES FOR ROAD PURPOSES

1950-51 and 1951-52

	1950-51	*1951-52*
Engineering and administration	$692,830.96	$817,364.89
Construction of Roads and Bridges		
Bridges, Viaducts, and Grade Separations:		
Primary roads	$2,271,759.09	$1,891,806.04
Secondary roads	173,109.07	80,745.68
Total	$2,444,868.16	$1,972,551.72
Roads		
Primary roads	$4,210,748.74	$4,815,372.01
Secondary roads	1,426,511.93	808,936.39
Total	$5,637,260.67	$5,624,308.40
Total construction of roads and bridges	$8,082,128.83	$7,596,860.12
Maintenance of Roads and Bridges		
Bridges, Viaducts, and Grade Separations:		
Primary roads	$161,536.60	$31,221.50
Secondary roads	69,229.97	36,651.33
Total	$230,766.57	$67,872.83
Roads		
Primary roads	$1,304,066.66	$1,677,573.25
Secondary roads	1,665,863.30	1,994,036.87
Total	$2,969,929.96	$3,671,610.12
Total maintenance of roads and bridges	$3,200,696.53	$3,739,482.95
Acquisition of rights of way	$964,812.47	$808,127.44
Acquisition of other real property	867,088.14	217,711.40
Acquisition of equipment	463,653.28	371,051.14
Amount expended by State and withheld from apportionment to county under Sec. 2120, Streets and Highways Code	131,929.57	182,839.61
Total expenditures for road purposes	$14,403,139.78	$13,733,437.55
Contributions to other governmental agencies for street or road purposes	2,367,854.05	3,488,105.08
Other expenditures	500,599.09	69,509.40
Grand total	$17,271,592.92	$17,291,052.03

SOURCE: Los Angeles County Road Department.

TABLE 7

LOS ANGELES COUNTY
POWER STREET SWEEPERS
August, 1952

County number	*Location (housed)*	*Area swept*	*Number of operators*
MS-10	923 Petrolia Ave., Compton, Warehouse 4	Spare	0
MS-11	14747 E. Ramona Blvd., Baldwin Park, Warehouse 1	San Dimas, El Monte, Baldwin Park, Azusa area	1
MS-12	923 Petrolia Ave., Compton, Warehouse 4	Spare	0
MS-13	1636 Eastlake Ave., Los Angeles	Idle, trade in on new sweeper	0
MS-14	24309 Walnut St., Lomita, R. D. 408	Lomita	1
MS-15	252 W. Mountain View, Altadena, R. D. 501	Altadena	1
MS-16	SW corner of Georgia and Madison Streets, R. D. 117	Paramount	1
MS-17	252 W. Mountain View, Altadena, Warehouse 2	Spare	0
MS-18	2120 E. 90th St., Los Angeles 2, R. D. 201	Compton area	1
MS-19	3916 Dunsmore Ave., La Crescenta, R. D. 502	La Crescenta	1
MS-20	5213 N. Encinita Ave., Temple City, R. D. 103	Temple City and Rosemead	1
MS-21	SW corner Bellflower and South Streets, R. D. 117	Lakewood	1
MS-22	5530 W. 83d St., Los Angeles 45, Warehouse 3	Spare	0
MS-23	923 Petrolia Ave., Compton, Warehouse 4	Spare	0
MS-24	923 Petrolia Ave., Compton, Warehouse 4	Spare	0
MS-25	11559 E. Rosecrans, Norwalk, R. D. 116	Norwalk	1
MS-27	923 Petrolia Ave., Compton, R. D. 407	Gardena	1
MS-28	12627 S. Paramount, Downey, R. D. 114	Bell Gardens	1
MS-29	14747 E. Ramona Blvd., Baldwin Park, Warehouse 1	El Monte, Baldwin Park, San Dimas, Azusa area	1
MS-31	5530 W. 83d St., Los Angeles, Warehouse 3	Lennox and Baldwin Hills	1
MS-32	5213 N. Encinita Ave., Temple City, R. D. 103	North Temple City, East Pasadena, East Altadena	1
MS-33	4631 E. Fourth St., Los Angeles, R. D. 101	Montebello, East Los Angeles area	1
MS-34	228 Sierra Highway, Palmdale, Warehouse 5	Palmdale and Lancaster	1
MS-35	4304 Eugene St., Los Angeles, R. D. 100	City Terrace and Belvedere, north to Alhambra	1
MS-36	132 W. Washington Blvd., Whittier, R. D. 105	Whittier area	1
MS-37	647 San Vicente Ave., West Hollywood, R. D. 301	West Hollywood	1
MS-38	SW corner Bellflower and South Streets, Lakewood, Warehouse 4	Lakewood	1
27	Total		20

SOURCE: Los Angeles County Road Department.

TABLE 8

LOS ANGELES COUNTY
EXTENT OF COUNTY ASSISTANCE TO SCHOOL DISTRICTS WITHIN INCORPORATED CITIES IN COUNTY SCHOOL COOPERATIVE RECREATION PROGRAM
1952-53

	Hours allotted
AZUSA CITY SCHOOL DISTRICT	
Longfellow School	440
Riley School	287
Paramount School	240
Slauson School	440
	1,407
CLAREMONT SCHOOL DISTRICT	
Sycamore School	630
Claremont High School	630
Oakmont School	674
	1,934
COVINA ELEMENTARY SCHOOL DISTRICT	
Covina Grammar School	400
COVINA UNION HIGH SCHOOL DISTRICT	
Covina High School	465
COMPTON SCHOOL DISTRICT	
Colin Kelly School	447
Theodore Roosevelt School	447
	894
EL MONTE SCHOOL DISTRICT	
Columbia School	512
GLENDORA SCHOOL DISTRICT	
Roosevelt School	320
Wilson School	383
	703
HAWTHORNE SCHOOL DISTRICT	
York Street School	730
Eucalyptus School	730
Washington School	730
Ramona School	730
Jefferson School	730
	3,650
LA VERNE SCHOOL DISTRICT	
Lincoln School	579
Palomares School	300
	879
MONTEBELLO UNIFIED SCHOOL DISTRICT	
Eastmont Junior High School	320
Fremont Elementary School	344
Greenwood Elementary School	320
Montebello Junior High School	320
Vail School	320
	1,624
PALOS VERDES SCHOOL DISTRICT	
Val Monte School	320
SAN GABRIEL SCHOOL DISTRICT	
Roosevelt School	650
Wilson School	649
	1,299
WEST COVINA SCHOOL DISTRICT	
Sunset School	871
Cameron School	360
	1,231
WHITTIER ELEMENTARY SCHOOL DISTRICT	
Lincoln School	688
WHITTIER UNION HIGH SCHOOL DISTRICT	
Longfellow School	537
Lydia Jackson School	537
J. G. Whittier School	537
Lou H. Hoover School	620
Orange Grove School	681
	2,912
Total	18,918

SOURCE: Los Angeles County Department of Parks and Recreation.

TABLE 9

LOS ANGELES COUNTY
DEPARTMENT OF PARKS AND RECREATION
REPORT OF CONTRACT AMOUNTS FOR COMMUNITY RECREATION DEVELOPMENT PROGRAM

	Fiscal years						
Area	*1947-48*	*1948-49*	*1949-50*	*1950-51*	*1951-52*	*1952-53*	*Totals*
Alhambra City School District	----	----	----	$12,730.00	$11,665.87	$15,259.28	$39,655.15
Arcadia, City of	----	----	----	----	----	3,454.00	3,454.00
Avalon, City of (Catalina Island)	----	----	----	----	1,185.48	1,185.48	2,370.96
Beverly Hills Unified School District	----	----	----	1,684.96	2,200.00	2,200.00	6,084.96
Burbank Unified School District	----	----	----	----	7,628.87	7,628.87	15,257.74
Compton Union High School District and Compton Junior College District	----	$8,723.00	$9,099.83	9,099.83	9,099.83	9,099.83	45,122.32
Culver, City of	----	----	190.00	----	----	----	190.00
Glendale Unified School District	----	8,944.85	14,776.00	20,360.00	12,521.00	12,521.00	69,122.85
Hermosa Beach, City of	----	----	2,176.48	----	5,000.00	5,000.00	12,176.48
Long Beach Unified School District	----	----	----	----	----	28,370.07	28,370.07
Los Angeles City School District	$12,650.00	164,950.00	150,000.00	150,000.00	150,000.00	150,000.00	777,600.00
Lynwood City School District	----	----	----	----	15,233.00	15,233.00	30,466.00
Manhattan Beach City School District	----	----	579.09	----	6,057.54	6,057.54	12,694.17
Paramount School District	----	----	3,677.00	----	----	----	3,677.00
Pasadena City School District	10,000.00	30,000.00	38,425.00	36,892.00	40,604.00	55,786.00	211,707.00
Pomona Board of Education and the City of Pomona	----	----	9,581.56	9,226.56	13,609.00	13,609.00	46,026.12
Redondo Beach City School District	----	----	2,767.00	2,767.00	2,767.00	2,767.00	11,068.00
San Gabriel City School District	----	----	----	2,477.99	6,641.50	6,631.50	15,750.99
Santa Monica City School District	----	----	3,150.00	3,150.00	6,988.00	6,988.00	20,276.00
Sierra Madre City School District	----	581.25	840.10	840.10	840.10	840.10	3,941.65
South Pasadena, City of	----	----	400.00	7,547.33	7,547.33	7,547.33	23,041.99
Torrance Unified School District	----	----	----	4,822.00	4,822.00	4,822.00	14,466.00
Total	$22,650.00	$213,199.10	$235,662.06	$261,597.77	$304,410.52	$355,000.00	$1,392,519.45

SOURCE: Los Angeles County Department of Parks and Recreation.

EXHIBIT 1

LOS ANGELES COUNTY
REPORT OF PUBLIC HEALTH SUBCOMMITTEE OF THE COMMITTEE ON CITY-COUNTY RELATIONS LOS ANGELES DIVISION, LEAGUE OF CALIFORNIA CITIES
May 1, 1950

Members of the committee are: Charles W. Arthur, Health Officer, Pasadena, California; I. D. Litwick, M.D., Health Officer, Long Beach, California; Dr. Konstantine Sparkuhl, Health Officer, 318 North Soto Street (33); Fred Suder, Sanitarian, Beverly Hills Health Department; Chas. L. Senn, Engineer-Director, Bureau of Sanitation, Los Angeles City Health Department, Chairman.

ADMINISTRATION OF PUBLIC HEALTH PROGRAMS IN LOS ANGELES COUNTY

The following cities of Los Angeles County maintain their own health departments: Beverly Hills, Long Beach, Los Angeles, Pasadena, and Vernon.

Health services for all of the other incorporated cities and for the unincorporated territory are provided by the Los Angeles County Health Department.

State Laws and Regulations on Public Health

The authority for the county to provide health services for cities is contained in Sections 476, 477 and 480 of the State Health and Safety Code which provide in part:

''When the governing body of a city in a county consents by resolution or ordinance, the county health officer shall enforce the unincorporated territory of the county, not in conflict with general laws, and provide for the payment of all expenses incurred in enforcing them.''

Comparison of Programs, Services, etc., of Local Health Departments

The subcommittee members agree that it is generally uneconomical for a city of less than 50,000 population to attempt to independently provide full-time health services; that, generally, health services should be provided by adequately staffed, fully equipped health departments, operated by full-time personnel; that most of the cities receiving services from the County Health Department could not afford to maintain a satisfactory, full-time, independent local health department.

In view of the administrative requirements of Sections 1130 and 1155, quoted above, the subcommittee deems it unnecessary to make a detailed analysis of the type, character and thoroughness of public health services provided by the county health department or by cities which qualify for state financial assistance.

COORDINATION OF PROGRAMS OF SEPARATE HEALTH DEPARTMENTS

Members of the subcommittee studied the programs of the various local health departments in the fields of venereal disease, tuberculosis and general communicable disease control. Each department is carrying out the provisions of the same state laws and rules and regulations in a reasonably uniform manner. The members of the subcommittee agree that regulation and control of communicable diseases is now being handled as uniformly and effectively as it would be if there were but a single health agency for the county.

Section 1130 provides, "The State Department of Public Health, after consultation with and approval by the Conference of Local Health Officers, shall by board regulations establish standards of education and experience for professional and technical personnel employed in local health departments and for the organization and operation of the local health departments. Such standards may include the maintenance of records of services, finances and expenditures, which shall be reported to the State Department of Public Health in a manner and at such times as it may specify."

Section 1155 says, "No funds appropriated for the purposes of this article shall be allocated to any local health department whose professional and technical personnel and whose organization and program do not meet the minimum standards established by the State Department of Public Health."

State Regulations

If the governing body of a city does not request the services of the county health department, it must comply with Section 502 of the State Health and Safety Code which says "Every governing body of a city shall appoint a health officer. * * *"

Section 500 of the Health and Safety Code states:

> "The governing body of a city shall by ordinance adopt for the regulation of sanitary matters in the city such rules and regulations as are necessary and proper, and shall supervise all matters pertaining to the sanitary condition of the city."

Section 450 states:

> "The board of supervisors of each county shall adopt orders and ordinances necessary for the preservation of the public health in and observe in the city all of the following:
>
> "(a) Orders, quarantine regulations, and rules prescribed by the state department.
>
> "(b) Statutes relating to the public health."
>
> "The services shall continue indefinitely until the governing body of the city terminates them. * * * "
>
> "* * * a city, * * * through its governing body, may contract with the county for the performance by health officers or other employees of the county of any or all functions relating to, the enforcement in the city of all ordinances thereof relating to public health and sanitation. * * *"

State Financial Assistance for Local Health Services

The State Legislature, in 1947, adopted a program of providing financial assistance to local health departments "to further the provision of necessary public health services by granting financial assistance to cities, counties and local health districts, thus enabling them to meet present and future health needs in an efficient and effective manner. * * *"

Section 1102 states, "For the purposes of this chapter a 'local health department' shall be interpreted to mean any one of the following public health administrative organizations:

> "(d) The health department of a city of 50,000 or greater population. * * *
>
> "(e) The local health department of any county which had under its jurisdiction on the effective date of this chapter a population in excess of 1,000,000. * * *"

Reports of citizens' committees and university students who have studied the question of health administration in Los Angeles County have been reviewed. To the lay individual it may appear that artificial political boundaries present serious complications in performing field work. From practical experience, however, it has been found advantageous to administer large health departments on a district basis. Both Los Angeles City and Los Angeles County Health Departments maintain a number of health districts. Each is administered by a district health officer. Each district operates as a geographical entity and personnel of one district do not generally enter another health district. Because of this pattern, members of the subcommittee agree that no appreciable economy of travel time or routing field work would be effected by consolidating the existing full-time city health departments with the county health department.

Sanitation

Many of the sanitation problems of the county are uniformly covered by State law. For instance, all milk inspection is done under provisions of the State Agricultural Code. Each local milk inspection service must have personnel meeting qualifications established by the State. The Director of Agriculture designates which inspection agency shall be fully responsible for inspecting each milk plant and for inspecting all of the dairies in the various designated milk production areas. This program entirely eliminates any overlapping, duplicating or conflicting milk inspection programs. Restaurants, bakeries, food-processing establishments, and many similar businesses are uniformly regulated under provisions of the State Health and Safety Code. There are, however, a number of fields in which it is necessary to adopt local regulations. The board of supervisors does not have the authority to adopt ordinances which apply in cities. If the health officers of the area should decide it is advisable to adopt uniform regulations for such subjects as the manufacture and distribution of ice, dating of wrapped sandwiches and box lunches, or inspection and stamping of poultry and rabbits, uniformity cannot be achieved until these regulations are adopted by the governing bodies of each of the 45 incorporated cities in the county as well as by the board of supervisors.

A study of the needs for uniform food sanitation regulations for the county is being carried out by senior students of U. C. L. A. It is proposed that their report, after review by the health officers, will be submitted to an advisory committee composed of representatives from industry and labor associated with food businesses. The subcommittee then proposes to submit to the committee on city-county relations recommendations for uniform food regulations for consideration by all of the governing bodies in the county.

FINANCES

The total per capita expenditures for public health by the four major health departments in the county are listed below. A portion of this cost is provided by state and federal health assistance funds and in some jurisdictions, particularly in Los Angeles City, by health permit fees which approximate the cost of inspection of numerous types of businesses.

	Total per capita expenditures	*Per capita cost of health services provided through city and county property tax funds*	*Average per capita amount of property tax collected for maintaining city and county health services*
Long Beach	$1.21	$0.89	$1.39
Los Angeles City	1.34	.82	1.32
Los Angeles County (and cities receiving county health services)	1.38	1.24	.45
Pasadena	.99	.58	1.08

The property owners of cities which maintain their own health departments not only support their own health department but in addition pay 50 cents per capita towards maintaining health services provided by the county, from which they receive no benefit.

SUMMARY AND CONCLUSIONS

1. The Subcommittee on Health believes that cities of the county which qualify for state health assistance funds are providing health services that are at least equal in quality and quantity to that provided by the county.
2. No substantial increases in economy or efficiency could be expected by combining such health departments with the County Health Department because:
   - (a) The county would have to provide fully staffed and equipped branch or district units wherever such local units are now being maintained.
   - (b) State laws and regulations have provided a high degree of uniformity of services and health administration policies and programs.
   - (c) Past experience has shown that per capita costs of county health services have not been reduced by consolidations of other local health services.

It Is Recommended:

1. That all governing bodies in the county cooperate in developing uniform sanitation laws in fields not adequately covered by state regulations and where such laws regulate conditions or business which affect the entire metropolitan area.
2. That the Legal Subcommittee outline the procedures necessary for eliminating the present unfair and unequitable assessment of costs of the county health department against residents of cities which also maintain their own health departments.

EXHIBIT 2

LOS ANGELES COUNTY

THE COORDINATION OF RECREATIONAL FACILITIES IN LOS ANGELES COUNTY

Statement by Roger W. Jessup, Chairman of the Board of Supervisors of Los Angeles County, made January 10, 1945, at a meeting of the County Citizens Committee on Parks, Beaches, and Recreational Facilities

This vast county, as we know, comprises not only large and densely populated unincorporated areas which are governed by the board of supervisors, but includes 45 incorporated cities.

In several of the larger cities considerable progress has been made in providing for recreational areas but there has never been any coordinated planning between the various agencies. Each has acquired those play areas which deemed suitable for its own needs without consideration for the needs or plans of the others. As a result we have failed to make the best possible use of the facilities available. We have not pushed park development to keep up with our population growth and the tax burdens for these projects have not been equitably distributed.

In this county there are many regional parks and many beach areas which are used by all the people of the county, although they are supported by individual cities or the board of supervisors. For example, Brookside Park is supported by the taxpayers of Pasadena, although more than 30 percent of the persons who enjoy its benefits are from other outside communities. There many other regional play areas which are of general county benefit and which should accordingly be supported by the taxpayers of the county as a whole. Among examples are Griffith Park in the City of Los Angeles, various municipally owned golf courses, Val Verde Park, the public beaches, etc.

Our county in recent years has grown at a tremendous pace, so rapidly in fact that it has been impossible for park development to keep pace with it. This growth will continue. Our Regional Planning Commission has estimated that by 1965 our population will exceed 6,000,000. It will be your responsibility to devise an agency which can conduct a park program suitable for such a vast metropolitan area.

One of the major problems which you will face will be that of determining a means of fairly distributing park and beach benefits so that all the cities and all parts of the county will have a sense of participation. Some of the larger cities already have a considerable investment in park and beach areas, and I feel sure they will wish to continue operating them individually.

Any consideration of a comprehensive park and recreation plan will be incomplete without some consideration of the part which the Angeles National Forest with its splendid mountain retreats, and the public schools with their many playgrounds, can play in it.

EXHIBIT 5

LOS ANGELES COUNTY

COUNTY FINANCIAL ASSISTANCE TO COMMUNITY RECREATION PROGRAMS: SPECIMEN CONTRACT WITH THE PASADENA CITY SCHOOL DISTRICT, DATED JULY 1, 1952

AGREEMENT

Community Recreation Program

THIS AGREEMENT made and entered into this first day of July, 1952, by and between the COUNTY OF LOS ANGELES, hereinafter called the "County" and the PASADENA CITY SCHOOL DISTRICT of Los Angeles County, hereinafter called the "District",

WITNESSETH:

WHEREAS, Chapter 4 of Division 12 of the Education Code authorizes counties, cities and school districts to cooperate with each other in the development and execution of adequate programs of community recreation; and

WHEREAS, The district and the City of Pasadena, a municipal corporation, have heretofore, and will during the Fiscal Year 1952-53, jointly carry on a program of community recreation; and

WHEREAS, The district will, pursuant to agreement with the City of Pasadena, operate and conduct the said joint program of community recreation during the Fiscal Year 1952-53; and

WHEREAS, The assistance of the county in the maintenance of an enlarged program of community recreation has been requested by the district and the City of Pasadena; and

WHEREAS, The district and the City of Pasadena have budgeted $94,928 for the conduct of their community recreation program during the Fiscal Year 1952-53; and

WHEREAS, For the sum of $24,144 the district has offered to provide after-school, holiday and vacation recreational services for four schools which are not a part of the district; and

WHEREAS, The Board of Supervisors of the County of Los Angeles is fully aware of the need for such an enlarged program of community recreation and has determined that the public interest will be served by county participation in the financing of this program.

NOW THEREFORE, The county and district hereby mutually covenant and agree and by these presents do mutually covenant and agree with each other as follows:

1. That the term of this agreement shall be from July 1, 1952, to June 30, 1953.

2. The district agrees to provide, during the term of this agreement, after-school, holiday and vacation recreational services for four schools, which are not a part of the district, as follows:

A. Part time services at centers		$5,212
LaCanada Elementary School—after school	$551	
Paradise Canyon Elementary School—after school	551	
LaCanada Junior High School—Saturdays, Christmas and Easter	999	
Temple City Junior High School—Saturdays, Christmas and Easter	$999	
Temple City Junior High School—youth club	334	
LaCanada Elementary School—Summer vacation	1,178	
Temple City Junior High School—Summer vacation	563	
Temple City Junior High School—badminton clubs	37	
B. Special activity services (centrally located but opportunity to participate extended to entire area)		$1,173
Junior drama guild		
Dance groups		
Summer matinees		
Crafts instruction and direction		
Tennis clinic and tournaments		
Baseball school		
Summer band and concerts		
Summer movies		
C. Full time activity leaders, administrative and supporting services personnel		13,523
D. Operating expenses		4,236
Transportation mileage		
Maintenance of vehicles		
Supplies		
Utilities		
Telephone		
Retirement		
Insurance		
Furniture and equipment		
Audit		
Attendance at conference		
Maintenance of building		
Total services and expenses		$24,144

3. The district agrees to spend $126,570, which includes the amounts budgeted by the county; by the district and by the City of Pasadena, upon a community recreation program under the jurisdiction of the district.

4. In consideration of the foregoing agreements on the part of the district, the county agrees to pay to the district during the Fiscal Year 1952-53, an amount equal to twenty-five percent (25%) of the total amount expended under paragraph 3 above by the district in providing community recreation services within the jurisdiction of the district, provided that the amount payable by the county for this purpose shall not exceed $31,642 for said fiscal year.

5. In addition to the above sum of $31,642, the county agrees to pay $24,144 to the district during the Fiscal Year 1952-53 for furnishing as per paragraph 2 above, after-school, holiday and vacation recreational services to the four schools which are not in the district.

6. In order to facilitate the financing of the said community recreation program, the county agrees at the commencement of each quarter, with the exception of the fourth quarter for which a special provision is hereinafter made, to pay the district one-fourth of the sum of $55,786.

7. On or after the commencement of the fourth quarter of the year covered by this agreement, the district shall submit to the county a verified statement of expenditures showing the total amount expended by the district for the community recreation program for the preceding three quarters, together with a budget of proposed expenditures for such purposes for the final quarter. Such statement and budget shall show the amount of such expenditures incurred and to be incurred in providing and maintaining the recreational facilities and services provided for herein.

Upon receipt of such statement and budget and the verification of the same by the county auditor and the county chief administrative officer, the county shall pay to the district the amount determined to be required in order to complete the county's obligation hereunder.

On or after July 1, 1953, the district shall send a verified statement of expenditures for the fourth quarterly period showing the total amount actually expended by the district in furnishing and maintaining said recreational facilities and services provided for herein during such quarter. Such additional sum as may then be found to be due to the district hereunder shall be paid at that time but not to exceed the amount stipulated under paragraphs 4 and 5 above. In the event, however, said statement discloses that the district has received from the county more than twenty-five percent (25%) of its total actual expenditures under paragraph 4 above and more than its total actual expenditures under paragraph 5 above for the fiscal year for said services, the district agrees to refund to the county any such excess.

In Witness Whereof, the County of Los Angeles has caused this agreement to be executed on behalf of the county by the chairman of its board of supervisors and the district has caused this agreement to be subscribed by the duly authorized officers of the Pasadena City School District of Los Angeles County.

Attest:

Harold J. Ostly, County Clerk and ex officio Clerk of the Board of Supervisors of the County of Los Angeles
By Ray E. Lee, Deputy

Approved:

Chief Administrative Officer
County of Los Angeles
By Roger W. Jessup
Chairman, Board of Supervisors

Pasadena City School District

By____
President

By____
Secretary

APPROVED AS TO FORM
Harold W. Kennedy, County Counsel
By John B. Beck, Deputy

L-3089 5-53 1,500

printed in CALIFORNIA STATE PRINTING OFFICE